CARMEL AREA WASTEWATER DISTRICT

Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE) Mitigation Pipeline Undergrounding Project

SCH #

Draft Initial Study
and
Mitigated Negative Declaration

Coastal Conservancy
STATE of CALIFORNIA

CARMEL AREA WASTEWATER DISTRICT

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Draft Initial Study
and
Mitigated Negative Declaration

Prepared for:
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CHAPTER 1. INTRODUCTION

The Carmel Area Wastewater District (CAWD) has prepared this Initial Study/Mitigated Negative Declaration (IS/MND) to provide the public, responsible agencies, and trustee agencies with information about the potential environmental effects of construction and operation of the proposed Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE) Mitigation Pipeline Undergrounding Project (Proposed Project). The Proposed Project is described in Chapter 2. This document was prepared in accordance with the requirements of the California Environmental Quality Act (CEQA) of 1970 (as amended) and CEQA Guidelines (14 California Code of Regulations [CCR] § 15000 et seq.).

Intent and Scope of this Document

This IS/MND has been prepared in accordance with CEQA, under which the Proposed Project is evaluated at a project level (CEQA Guidelines § 15378). The CAWD, as the Lead Agency under CEQA, will consider the Proposed Project's potential environmental impacts when considering whether to approve the project. This IS/MND is an informational document to be used in the planning and decision-making process for the Proposed Project and does not recommend approval or denial of the Proposed Project. The site plans for the Proposed Project included in this IS/MND are conceptual. The CAWD anticipates that the final design for the Proposed Project would include some modifications to these conceptual plans, and the environmental analysis has been developed with conservative assumptions to accommodate some level of modification. This IS/MND describes the Proposed Project; its environmental setting, including existing conditions and regulatory setting, as necessary; and the potential environmental impacts of the Proposed Project on or with regard to the topics on the CEQA Initial Study checklist, in Chapter 3.

Public Involvement Process

Public disclosure and dialogue are priorities under CEQA. CEQA Guidelines §15073 and §15105(b) require that the lead agency designate a period during the IS/MND process when the public and other agencies can provide comments on the potential impacts of the Proposed Project. Accordingly, the CAWD is now circulating this document for a 30- day public and agency review period.

All comments received before 5:00 p.m. from the date identified for closure of the public comment period in the Notice of Intent will be considered by the CAWD during its deliberations on whether to approve the Proposed Project. To provide input on this project, please send comments to the following contact:

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Organization of this Document

This IS/MND contains the following components:

Chapter 1, *Introduction*, provides a brief description of the intent and scope of this IS/MND, the public involvement process under CEQA, and the organization of and terminology used in this IS/MND.

Chapter 2, *Project Description*, describes the Proposed Project, including its objectives, the project site where the Proposed Project would be constructed, the construction approach and activities, operation-related activities, and related permits and approvals.

Chapter 3, *Environmental Checklist*, presents the environmental checklist used to assess the Proposed Project's potential environmental effects, which is based on the model provided in Appendix G of the CEQA Guidelines. This chapter also includes a brief environmental setting description for each resource topic and identifies the Proposed Project's anticipated environmental impacts, as well as any mitigation measures that would be required to reduce potentially significant impacts to a less than-significant level.

Chapter 4, *References*, provides a bibliography of printed references, websites, and personal communications used in preparing this IS/MND.

Appendices

- Appendix A. Air Quality Calculations
- Appendix B. Biological Resource Study
- Appendix C: Noise Appendix
- Appendix D: Tribal Cultural Resources Outreach
- Appendix E. Mitigation Monitoring and Reporting Program (to be added in Final IS/MND)

CHAPTER 2. PROJECT DESCRIPTION

1. Background and Need for the Project

The purpose of the project is to replace existing wastewater pipelines that currently span the south arm of the Carmel River Lagoon with new pipelines installed deep below the bed of the lagoon so that they would not be subject to damage by increased river flows in the south arm created by the CRFREE project being proposed by Monterey County.

In the absence of the CRFREE Project being proposed by Monterey County, CAWD has other options for maintaining these pipelines long term. For example, in October 2018, CAWD determined during an engineering assessment of the pipeline lagoon crossing structure that the pile bent crossbeams at the aerial crossing required immediate repair. In January 2019, CAWD was issued a Department of the Army Regional General Permit for Repair and Protection Activities in Emergency Situations to implement needed repairs on the lagoon crossing. These repairs, completed in March 2019, used minimally invasive construction methods and were successful in completely restoring the degraded cross beams to full design strength.

Because of the potential significant adverse impacts created by the CRFREE Project on the location of the existing above ground infrastructure, the only acceptable option is to relocate the pipelines underground to mitigate the effects of CRFREE in accordance with CEQA. Thus, the CRFREE Project creates the need for the pipeline undergrounding project described herein.

2. Project Purpose and Objectives

The purpose of the project is to replace a sewage force main and a treated wastewater outfall that currently span the south arm of the Carmel River Lagoon and are susceptible to flood damage, with new pipelines undergrounded below the lagoon that would not interfere with, or be subject to damage by, flows in the lagoon.

3. Project Location and Setting

The approximately 18-acre project site is located within the south arm of the Carmel Lagoon north of Calle la Cruz, within unincorporated Carmel, Monterey County, California (Figure 1). The project site is bordered by the Carmel Area Wastewater District (CAWD) Treatment Plant to the northeast, the Carmel River to the northwest, and the Carmel River Lagoon and residential development (Carmel Meadows) to the south, and the Pacific Ocean to the west. CAWD's Carmel Meadows pump station is within the western portion of the project site, directly west of the lagoon (Figure 2). The project site is partially within the Carmel River State Beach, owned and operated by State Parks, and the Caltrans' Carmel River Mitigation Bank. The greater area surrounding the project site is dominated by medium-density residential development to the north (Carmel-By-The-Sea) and undeveloped land to the east.

Figure 1

Project Location

Source: Johnson Marigot Consulting, LLC

Figure 2

Site Plan

Source: Johnson Marigot Consulting, LLC

The eastern portion of the project area bounds an unpaved access road that would be used to access the project work areas on the east side of the lagoon. The western portion of the project area includes a paved maintenance road and network of unpaved access roads and trails that would be used to access project work areas on the west side of the lagoon.

4. Proposed Project Characteristics

CAWD proposes to install an approximately 1,000-foot segment of two parallel wastewater pipelines under the Carmel Lagoon using horizontal directional drilling (HDD). The new pipes would replace the pipes that currently span the lagoon. The existing 6-inch raw sewage force main and 24-inch treated wastewater pipelines proposed for replacement include sections of undergrounded pipe on either side of the lagoon, as well as an approximately 150-foot pile-supported section that spans the lagoon (Figure 3).

The existing 6-inch pipe is a cement lined ductile iron pipe with an inside diameter of 6.28-inch, and the existing 24-inch pipe is a cement lined steel cylinder pipe with a reinforced concrete coating and an inside diameter of 21.875-inch. The existing 24-inch pipe also includes a cathodic protection system from the treatment plant to the ocean. The proposed replacement pipes installed by HDD would be of high-density polyethylene (HDPE), because this pipe type is compatible with HDD installation due to its high flexibility and tensile strength. To make the HDPE pipe achieve adequate tensile strength to withstand the pulling forces during HDD installation the pipe wall needs to be relatively thick. To achieve inside diameters for the new pipes that are equivalent to the existing pipes, the new HDPE pipe nominal diameters would be 8-inch and 28-inch.

The geometry requirements for the HDD installation to achieve adequate depth under the lagoon to avoid frac-out[1] is a key element in the design of the new pipelines. The entry and exit locations must be spaced far enough back from the lagoon so the drill path stays within the bending limits of the drill shaft as it arches under the lagoon from one side to the other. HDD entry and exit locations would occur within upland locations within the existing pipeline easement/footprint however the newly installed pipelines would require a straight path between entry and exit points, and as such, the new pipelines would occur primarily outside of the existing pipeline easement/footprint which is not straight enough to facilitate HDD (Figure 3). HDD methods described in detail below would be used to drill a new pipeline alignment between the entry and exit points. Once the new pipelines are installed, limited trenching within upland locations on the east and west side of the lagoon would be necessary to tie the new pipelines into the existing pipelines. Once the new pipelines are installed and tied in, the existing above ground pipelines spanning the lagoon and associated support piles would be removed. Undergrounded segments of the existing pipelines that would be bypassed by the new pipelines would be abandoned in-place.

[1] A 'frac-out' is the unintentional return of drilling fluids to the surface during horizontal directional drilling. A frac--out occurs when the down hole mud pressure exceeds the overburden pressure (i.e. shallow or loose sections of the bore), or the fluid finds a preferential seepage pathway (such as fault lines and fractures, infrastructure or loose material).

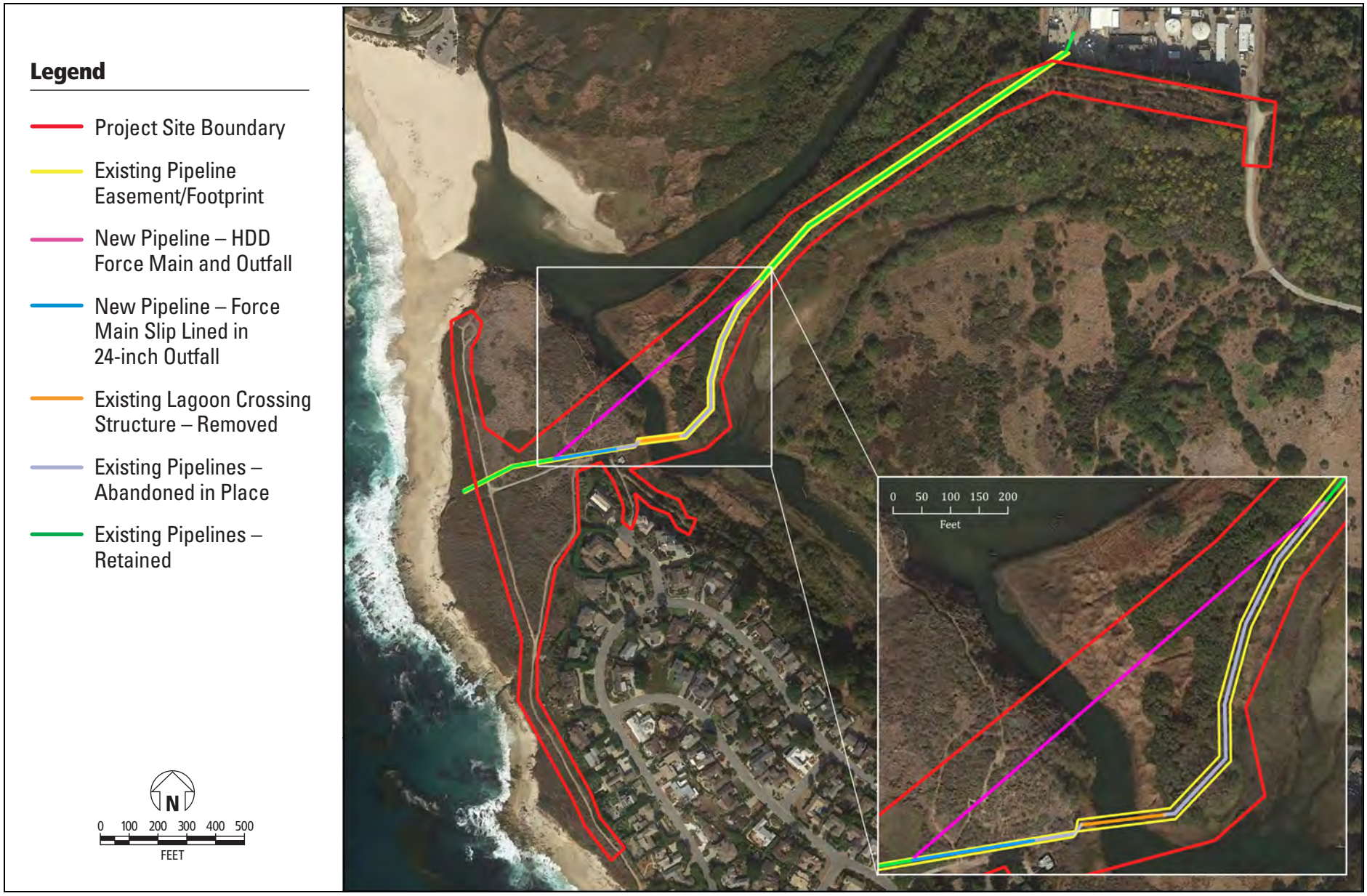

Figure 3

Pipeline Easement/Footprint

Source: Johnson Marigot Consulting, LLC

To facilitate construction access and staging, portions of existing access roads and adjacent upland areas on the east and west sides of the lagoon would need to be mowed, hand trimmed, or cleared and grubbed, stabilized, and widened to accommodate vehicular access, equipment and material storage, and pipeline lay-down. Construction work areas large enough to accommodate vehicular and construction equipment access would be established around the drilling locations, the pipeline trenching area, and the pipeline removal area. Areas of direct ground disturbance within the drilling and pipeline removal work areas would be clearly delineated, and cleared and grubbed (See Figure 4) prior to commencement of earthwork activities, which are summarized in Table 1.

A detailed description of site preparation, HDD methods, pipeline removal methods, post construction activities, and construction equipment and schedule are provided in the following sections.

Construction Activities

Site Preparation

To facilitate construction, staging areas and work areas would be established within the project area and access roads would be cleared and stabilized, as necessary. Figure 4 provides a layout of the staging areas, work areas, and access roads described below.

Staging and Laydown Areas: Staging and laydown areas would be needed to store pipe, construction equipment, and other construction-related materials and support equipment. The project would include 1 staging area east of the lagoon, 1 staging area west of the lagoon, and 1 staging area at the existing CAWD Wastewater Treatment Plant. The staging area on the east side of the lagoon is located directly south of CAWD's entrance gate on a gravel pull-out adjacent to the plant entry road. On the west side of the lagoon, a 320-foot portion of CAWD's Carmel Meadows maintenance road would be used as a staging area for construction vehicles, materials and support equipment (Figure 3b). Additionally, approximately 1,000 feet of linear staging on existing access roads and trails on the east and west side of the lagoon within the project area would be utilized for the pipeline layout during pullback. Vegetation would be disturbed, likely by hand-trimming and/or mowing, for pipeline lay-down adjacent to the Carmel Meadows trail on the west side of the lagoon. All staging areas would be located on or adjacent to existing paved or unpaved roads. The locations of these staging and laydown areas are shown in Figure 4.

Work Areas: All construction activities would be confined to three work areas within the larger project area. A summary of work area features is provided in Table 1. Construction work areas include: two approximately 0.30-acre HDD drilling/pull-back/tie-in areas and an approximately 0.3-acre pipeline removal area (Figure 4). The HDD work areas are located on the east and west sides of the lagoon (Eastern HDD work area and Western HDD work area) and the pipeline removal work area is within and adjacent to the lagoon. The pipeline removal work area includes the maintenance road and pedestrian trail adjacent to the Carmel Meadows Pump Station to support removal of the existing pipelines that currently span the Carmel River Lagoon.

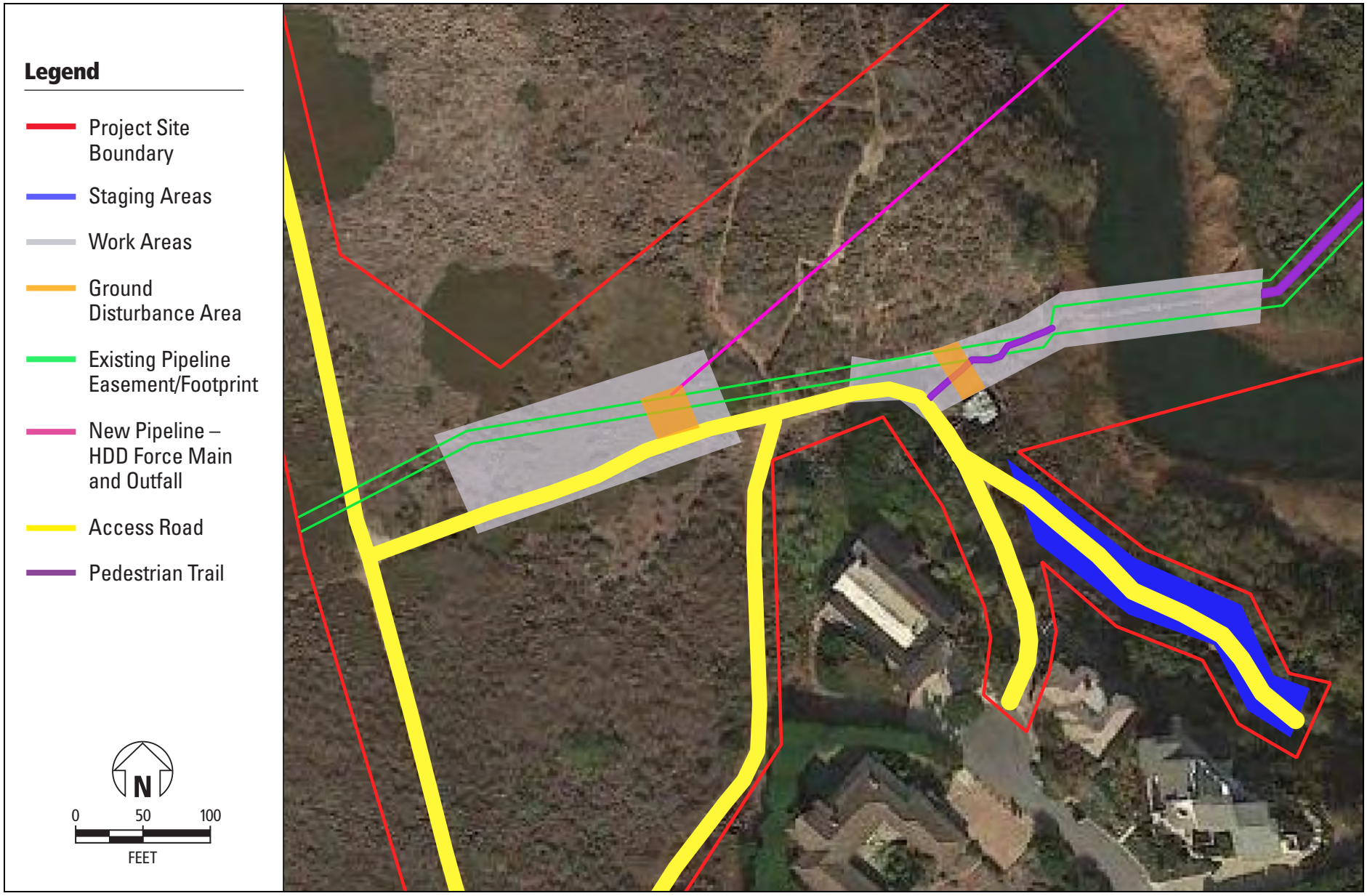

Figure 4

Western Side of Action Area

Source: Johnson Marigot Consulting, LLC

All vegetation within each of the 0.30-acre (13,000 sq. ft) work areas would need to be removed to clear an area large enough to accommodate HDD construction activities and associated equipment. The vegetation in the Western HDD work area is dominated by ice plant with patches of coastal scrub, and the vegetation in the Eastern HDD work area is dominated by willows. An additional approximately 800 square foot area would be cleared of vegetation adjacent to the Carmel Meadows Pump Station to accommodate raw sewage force main tie-in to the existing Carmel Meadows Pump Station. The vegetation in the pipeline removal work area is primarily poison oak.

Limited ground disturbance would be necessary in each work area for underground work. This ground disturbance would be confined to specific areas within the larger work area (Figure 4). Within the HDD work areas, ground disturbance would include drilling entry and exit pits and trenching to tie-in the new pipelines to existing pipelines. The project would also include trenching for raw sewage force main tie-in in uplands adjacent to the Carmel Meadows Pump Station. The Ground Disturbance Areas would encompass approximately 1,000 square feet within the eastern HDD work area, 500 square feet within the western HDD work area, and approximately 200 square feet where the FM connects to the existing Pump Station.

The upland portion of the pipeline removal work area includes the maintenance road area directly west of the Carmel Meadows Pump Station, which would be utilized to support removal of the existing pipelines and support piles that currently span the Carmel Lagoon. A crane would likely be parked at this location on the existing maintenance road for use in removing segments of the existing pipelines and support piles crossing the lagoon. The equipment and personnel associated with in-water pipeline dismantling activities (e.g., small watercraft, divers) would also utilize this area as a launching point for in water work.

Table 1. Work Area Features

Work Area	**Components**	**Approximate Area & Volume**
Eastern HDD Work Area	Work Area & Vegetation Removal Area	0.30 ac 13,068 sq ft
	Ground Disturbance Area *Includes Drill Pit and Tie-In Trench*	1,000 sq ft 5,000 cu ft
Western HDD Work Area	Work Area & Vegetation Removal Area	0.30 ac 13,068 sq ft
	Ground Disturbance Area *Includes Drill Pit and Tie-In Trench*	475 sq ft 375 cu ft
FM Connection to Pump Station Area	Vegetation Removal	800 sq ft
	Ground Disturbance	200 sq ft 1,000 cu ft
Pipeline Removal Area	Work Area	0.30 ac 13,068 sq ft

Site Access: The work areas on the east side of the lagoon would be accessed from the CAWD Wastewater Treatment Plant via an existing unpaved maintenance road that corresponds with CAWD's 20-foot easement for the existing underground pipelines. The segment of this road that extends from the CAWD Wastewater Treatment Plant to the western extent of the Eastern HDD work area would be used for motorized vehicular access and pipe lay-down. The segment of this road that extends from the western extent of the Eastern HDD work area to the eastern shore of the lagoon would be restricted for pedestrian use only.

The staging areas and work areas on the west side of the lagoon would be accessed from Calle La Cruz via an existing paved maintenance road. A network of unpaved access roads extends from this maintenance road, including several loops of the Carmel Meadows trail network to the north and west; a pedestrian trail to CAWD's Carmel Meadows Pump Station to the east; and CAWD's Carmel Meadows maintenance road to the southeast. Portions of the Carmel Meadows trail network totaling approximately 3,200 feet would be used for motorized vehicular access, pipe lay-down, and to access to staging areas and work areas. The foot trail from the paved maintenance road to the pipes crossing over the lagoon would be used for pedestrian access to the west side of the lagoon and for material transport during pipeline dismantling activities.

Vegetation would be disturbed to facilitate construction access. This vegetation disturbance would be low impact, and vegetation in these disturbance areas is expected to recover faster than areas that are cleared and grubbed (i.e., work areas). On the eastern side of the lagoon, overgrown vegetation on the maintenance road and pedestrian trail would be trimmed, as needed, to maintain a road width of at least 12-feet for vehicular access and a trail width of 6-feet for pedestrian access. As CAWD maintains their 15-foot-wide easement along this maintenance road for vehicular access, it is likely that vegetation trimming along this road will be minimal. On the west side of the lagoon, vegetation would be hand trimmed/mowed along the foot trail to CAWD's pump station to widen the trail to 6-feet. Perennial wetland vegetation within the pipeline removal work area would be disturbed by crushing and small water-craft access during pipeline removal activities.

The seasonal and perennial wetlands on the maintenance road and pedestrian path east of the lagoon would be protected using 2-inch thick open-celled and interlocking HDPE mats. These mats would protect wetlands and facilitate vehicular access. The pedestrian trail on the west side of the lagoon would be stabilized with plywood, or similar material, to stabilize the trail for pipeline removal. During pipeline removal, segments of pipeline would be winched up this trail.

Prior to the date of initial ground disturbance, the project area would be clearly delineated with silt fencing or flagging. All work areas and staging areas would be clearly identified with 3-foot-tall bright orange silt fencing that is trenched into the soil. As there are hundreds of linear feet of construction access roads throughout the project area, silt fencing would heavily constrain wildlife movement. For example, installing silt fencing along the maintenance road on the east side of the lagoon would block off the majority of upland habitat on the historic levee between the Carmel River and Lagoon. Therefore, to avoid

constraining wildlife movement within the project area, the construction access roads would be delineated with construction flagging as opposed to silt fencing.

HDD and Pipeline Placement

HDD is a steerable, trenchless method of installing underground pipelines along a prescribed bore path by using a surface drilling rig. HDD causes minimal impacts compared to open trench methods, and ground disturbance occurs only in the immediate vicinity of each entry/exit point.

Prior to drilling, a guidance system would be installed along the center of the new pipeline alignment. This system consists of a cable - clamped to the ground with landscape staples. As the guidance system needs to be installed in a relatively straight line over the pipeline alignment, limited vegetation disturbance in the form of trimming may be necessary to clear a path through high brush. This vegetation disturbance would consist of a 2-foot corridor through the costal scrub on the west side of the lagoon and a 3-foot corridor through the willow thicket on the east side of the lagoon.

Drill pits measuring approximately 20-foot by 20-foot by 6-foot deep are dug at the entry and exit points to contain drilling fluid and spoil returns. Drilling fluid, which typically consists of a bentonite (i.e. clay)/water mixture, is used during each HDD stage to cool the drill bit/reamer, maintain the bore hole opening, remove bore cuttings, and strengthen the walls of the bore. Drilling fluid would be stored in fixed-angle storage tanks within the HDD work areas. Used drilling fluid would be transported offsite to an appropriate upland sanitary land fill. HDD is typically conducted in four stages: drilling, casing, pre-reaming, and pull-back.

Stage 1 – Drilling: The first stage of HDD involves drilling a pilot hole using an HDD drill rig equipped with drill rods and a tri-cone drill bit. The drilling entry point may be from either the Eastern or Western HDD work area, or both. The drill path would arc under the lagoon at a maximum depth of approximately 50 feet below the lagoon's lowest elevation and would extend a total of approximately 1,000 feet. Guidance equipment provides continuous, accurate monitoring of the drill bit position to maintain the proper horizontal and vertical coordinates of the pilot hole. The drill bit is adjusted as needed to arc up and out of the ground at the pre-determined exit point.

Stage 2 – Casing: For this project, the west side of the drill path is at a significantly higher elevation than the east side (approximately 15 feet higher) which requires special consideration in terms of management of drilling fluid. The fluid in the bore hole cannot be maintained at a higher elevation than the ground surface elevation at the lower elevation east side of the bore. Therefore, for 15 feet of depth on the west side of the bore, the bore hole must be completed without drilling fluid. To drill without drilling fluid, a steel pipe casing larger than the new pipes would need to be driven into the ground to a depth of 15 feet along the pipeline alignment/profile. This would allow the pipe to be installed up to the higher elevation on the west side of the HDD.

Stage 3 – Pre-reaming: Once the pilot drill reaches the terminus point, a reamer is attached to the drill rods and pulled in reverse through the pilot hole in multiple passes to gradually enlarge the hole. A reamer is a type of rotary cutting tool designed to enlarge the size of a previously formed hole by a small amount but with a high degree of accuracy to leave smooth sides. The reaming process also compacts the walls of the borehole, which reduces the chances of voids, settlement, and fluid frac-out. The final reaming pass, called the swab pass, is made using a reamer the same size as the pipe; the swab pass helps clean the borehole of fine gravel and clay.

Stage 4 – Pullback: In the final stage the heat welded solid walled HDPE pipe with a length exceeding the bore would be pulled through the enlarged borehole behind the reamer assembly. The pipeline is pulled in reverse back to the drill rig. This process is supported by some combination of roller stands or pipe-handling equipment at the bore's exit point / pipe entry point.

The drilling/reaming/pullback described above would be done individually for each of the pipelines. Two pilot holes would be drilled, with one hole reamed to a size to fit the new 28-inch pipe and the other hole reamed to a size to fit the new 8-inch pipe.

About 10 truck trips would be required to transport pipeline materials to the site.

Trenching and Tie In

Trenching would be required at the HDD entry and exit points to tie in the new pipes to the existing pipes. All trenching would occur within upland locations and would not impact jurisdictional waters. In the Eastern HDD work area, an open cut trench approximately 20-foot by 50-foot by 5-foot deep would be trenched to connect the new 28-inch HDPE treated wastewater pipeline and new 8-inch HDPE raw sewage force main pipeline to the existing pipelines. In the western HDD work area, an open cut trench approximately 55-foot by 5-foot by 5-foot deep would be trenched to connect the new 28-inch HDPE treated wastewater pipeline to the existing pipeline and 40-foot by 5-foot by 5-foot deep for the 8-inch to the slipline location. In the area where the force main would be connected to the Pump Station, an open cut trench approximately 40-foot by 5-foot by 5-foot deep would be excavated adjacent to the existing pump station to connect the new force main to the pump station.

The exit point of the new raw sewage force main on the west side of the lagoon is approximately 250 feet west of the tie in location to the existing Carmel Meadows Pump Station. The new raw sewage force main would be slip lined through the existing 24-inch treated wastewater pipeline on the west side of the lagoon (proposed to be abandoned in place) to connect the new force main to the existing pump station. An open cut trench approximately 40-foot by 5-foot by 5-foot deep would be excavated adjacent to the existing pump station to connect the new force main to the pump station. The abandoned 24-inch pipe would be filled with grout after slip lining with the new 8-inch HDPE force main pipe is completed.

There would be minimal import of soils/fills for pipe bedding and backfill around the new pipes. All drill pits and trenches above the new pipes would be backfilled with native soil. The pipe bedding and the pipes themselves will result in excess soil left over after pipes are installed. Approximately 50 cubic yards of clean aggregate would be imported for placement at the base of and directly around the new pipes. Approximately 24 cubic yards of native soil would be removed for pipeline installation in the wetlands on the east side and taken to an appropriate upland disposal site out of the Coastal Zone. Approximately 90 to 120 cubic yards of native soil left over on the West side would not be removed from the site due to potential cultural significance and would be layered over the construction area after the pipes are backfilled.

Removal of Existing Outfall and Force Main

Following tie-in of the new pipelines to the existing pipelines, the 150-foot section of existing pile-supported pipelines spanning the Carmel River Lagoon would be removed in their entirety. Pipelines would be removed from the lagoon via small watercraft within the 40-foot-wide pipeline removal area along the existing easement/footprint and up the hill to the west. Pipelines would be removed first, followed by the support piles. Pipelines would be capped off and cut into small segments, lowered onto skiffs, floated to the shoreline, attached to a crane-mounted winch, and pulled up the pedestrian trail next to CAWD's Carmel Meadows Pump Station. Once the pipelines are entirely removed, divers would cut the support piles into segments down to the mudline. Pile segments would be attached to the winch and removed in the same manner as the pipeline segments.

To protect water quality and biological resources during pipeline removal activities, permeable turbidity curtains long enough to enclose the work area while not dragging on the bottom of the lagoon would be installed around the pipeline removal work locations. Curtains would be hung on cables anchored to the shore. To maintain fish passage and water flow, turbidity curtains would not be installed across the entire lagoon. Rather, curtains would be moved as dismantling activities progress, encircling the work location. Water confined inside the turbidity curtains may have elevated suspended sediments due to pipeline removal activities. Curtains would not be moved until silt settles out of the water column and the water column returns to pre-construction conditions.

To contain debris generated during pipeline removal activities, a permeable curtain would be placed below cutting locations. A permeable curtain is necessary because the pipelines are periodically submerged due to fluctuations in lagoon water levels from tidal cycles and fresh-water input from the Carmel River.

Removal of the existing pipelines spanning the lagoon would be done with the support of small watercraft and divers accessing the lagoon from the western shoreline. About 10 truckloads of old pipeline materials would be removed from the site.

Post-Construction Activities

Upon completion of construction activities, temporary fill (including all BMPs and other protective measures) would be removed from the wetlands, pre-construction grades would be restored, and the impacted areas would be re-planted with appropriate native vegetation. Site restoration would generally involve overall clean up and installing erosion controls, as necessary. Revegetation work would be consistent with a Revegetation Plan to be submitted to and approved by appropriate agencies prior to commencement of project activities.

Construction Equipment and Workers

To complete construction, the project would implement the use of various construction equipment including but not limited to: water trucks, HDD drill rig and associated drilling a fluid handling equipment, a skid steer, excavators, cranes, casing jacking equipment, and assorted other hand tools and equipment. Construction vehicles would only access the project site from the designated access roads. Work would be completed by five to ten construction workers at any given time during construction. Divers would be necessary for pile removal.

Construction Schedule

Construction is planned to occur from approximately Spring 2022 through Winter of 2022/ 2023. It is anticipated that the total project field work would take approximately 8 months to complete, with 2 months of site mobilization, 2 months of HDD, 2 months for pipeline tie-in, two weeks of work directly within the lagoon, and 1½ months of demobilization and revegetation.

Construction activities would be scheduled in a manner predicated on the presence/absence of biological and aquatic resources. These resources generally correspond with the aquatic resources and vegetation communities within the Project site, which can be divided into three major sections: 1) coastal scrub on the west side of the lagoon, 2) the Carmel River Lagoon (estuarine) and 100-foot Buffer, and 3) wetland and riparian east of the lagoon. Generally, ground disturbance work in a 100-foot buffer around the Carmel River Lagoon and wetland and riparian habitat east of the lagoon would be constrained to occur during species-appropriate work windows that generally correspond to the months when the lagoon is driest in the summer and fall. The constraints on the schedule of construction activities within each of these vegetation communities is outlined below.

Coastal Scrub West of the Lagoon: All construction activities in this location, which include but are not limited to, vegetation removal, excavation, trenching, and HDD, would be conducted any time of year.

The coastal scrub habitat on the west side of the lagoon consists of uplands that lack aquatic resources. Although some special status species are known to occur in this this vegetation community, it is expected that with appropriate best management practices (BMPs) and avoidance and minimization measures (AMMs) (e.g., biological monitoring during

construction activities, ESA fencing around work areas), potential adverse effects can be avoided.

The Carmel River Lagoon and 100-foot Buffer: CAWD intends to conduct pipeline removal activities in this location year-round. Ground disturbance work within a 100-foot buffer directly east and west of the Lagoon would be restricted to June 15th to October 31st SCCC steelhead work window. CAWD needs the flexibility to conduct in-water pipeline removal work year-round because this work will be completed after the new pipelines are installed and would most likely not be able to be completed prior to October 31st. Conducting pipeline removal immediately after pipeline installation, outside of the work window if necessary, would avoid remobilization the following spring.

The Carmel River Lagoon is known habitat for South-central California coast (SCCC) steelhead distinct population segment (*Oncorhynchus mykiss irideus*) and California red-legged frog (CRLF, *Rana draytonii*). However, it is expected that with appropriate AMMs that the work to remove and cap the existing pipelines crossing the lagoon can be completed without adverse effects to these species or water quality. In-water work would be limited to pipeline removal activities, which would be conducted using precise construction methods, using divers and hand tools, to cut and disassemble the pipelines using pontoon like floats to pull pipe segments to the shore. All construction access and material management necessary for pipeline removal would be conducted from the west side of the lagoon. Due to a rapid elevation gain on this side of the lagoon, this area is primarily uplands with only a narrow ribbon of perennial wetland habitat which can be easily monitored for CRLF during construction due to the small area. AMMs to protect steelhead, CRLF, and/or water quality in this location include, but are not limited to, restricting ground disturbance to June 15th to October 30th the use of a turbidity curtain around the work area and presence of an approved biologist (with the authority to stop work) during all work within the Carmel River Lagoon. Silt curtains would only traverse one side of the shore at a time to allow aquatic species to continue to move from one end of the lagoon to the other.

Wetlands and Riparian East of the Lagoon: In the riparian habitat on the east side of the Carmel River Lagoon, CAWD would limit the majority of construction activities to the May 1st to October 31st CRLF work window.

The riparian habitat and interspersed fresh/saline wetlands east of the lagoon are known habitat for CRLF. This section of the project site is subject to sporadic flooding from the Carmel River Lagoon, and saturation of soils within this area is variable for most of the wet season. As such, CAWD intends to conduct the majority of project activities, including but not limited to, HDD entry/exit area excavations, pipeline trenching, and soil stabilization work, during the May 1st to October 31st CRLF work window when ground conditions on the east side of the lagoon are driest However, due to length of construction schedule CAWD needs the flexibility of conducting certain site mobilization and site preparation activities outside this window so that work on the east side of the lagoon can be completed prior to October 31st. As the project is estimated to take 8 months to complete, CAWD needs to initiate minimally invasive site mobilization activities in later winter / early spring. Mobilization activities outside of the work window would be limited to delineating the work areas with

construction fencing, tree pruning, and vegetation removal. Appropriate AMMs and BMPs would be implemented during these activities to prevent take of CRLF.

Crews would typically work from approximately 6:00 a.m. to 5:00 p.m., Monday through Friday. These dates and times are subject to change, pending issuance of project permits and agency authorizations.

Best Management Practices/Avoidance and Minimization Measures

The project will incorporate a number of Best Management Practices (BMPs) and Avoidance and Minimization Measures (AMMs) that are either part of the District's standard contract specifications or proposed to be part of state and/or federal resource agency permit conditions in the project's permit applications.

These are summarized in Table 2, below:

Table 2: Best Management Practices and Avoidance and Minimization Measures to be Implemented for the Proposed Project

Number	Title	BMP/AMM Description
BMP-1	Best Management Practices for Construction Air Quality	The contractor would use construction equipment that minimizes air pollutant emissions to the extent feasible. Acceptable options for reducing emissions include the use of late-model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such become available.
BMP-2	Best Management Practices for Construction Emissions, Including Fugitive Dust Emissions	Implementation of construction BMPs to limit construction emissions, particularly fugitive dust emissions, as follows: • All exposed areas of bare soil should be watered as required to minimize fugitive dust emissions. • Earthmoving or other dust-producing activities shall be suspended during periods of high winds. • All exposed or disturbed soil surfaces shall be watered at least twice daily to control dust as necessary. • Stockpiles of soil or other materials that can be blown by the wind shall be watered or covered. Trenched fiber rolls shall be installed around the base of stockpiles. Stockpiles shall only be placed in the staging areas. • All paved access roads, parking areas, staging areas,

Number	Title	BMP/AMM Description
		and residential streets adjacent to the construction sites shall be swept daily (with water sweepers) and all construction exits shall be stabilized to prevent tracking. • All haul trucks transporting soil, sand, or other loose material off-site should be covered or maintain at least two feet of free board space. Any haul trucks traveling along freeways or major roadways should be covered. • All vehicle speeds on unpaved roads should be limited to 15 miles per hour (mph). • Idling times should be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne toxics control measure Title 13 CCR § 2485). Clear signage regarding this requirement should be provided for construction workers at all access points. • All construction equipment should be maintained and properly tuned in accordance with manufacturer's specifications. All equipment should be checked by a certified visible emissions evaluator and determined to be running in proper condition before it is operated. The Proposed Project would implement these measures as required.
BMP-3	Best Management Practices for Sediment Control	Site specific BMPs to control sediments during construction activities will be specified in a Stormwater Pollution Prevention Plan, (SWPPP), which may include but not be limited to: • Install, implement, and maintain BMPs consistent with the California Storm Water Quality Association Best Management Practice Handbook (California Storm Water Quality Association [CASQA] 2015) or equivalent to minimize the discharge of pollutants. • Implement practices to reduce erosion of exposed soil, including stabilization of soil stockpiles, watering for dust control, establishment of perimeter silt fences, and/or placement of fiber rolls.

Number	Title	BMP/AMM Description
		• Minimize soil disturbance area. • Where feasible, limit construction to dry periods. • Burlap bags filled with drain rock will be installed around storm drains to route sediment and other debris away from the drains. • All paved access roads, parking areas, staging areas, and residential streets adjacent to the construction sites will be swept daily (with water sweepers) and all construction exits will be stabilized to prevent tracking. • Vegetation in disturbed areas will be replanted as quickly as possible; using appropriate native vegetation prior to the first rainy season after construction. • To reduce potential temporary impacts to wetlands and waters in the project area, BMPs will be employed to reduce impacts associated with excavation and grading such as erosion and sedimentation. These include use of silt fences, stabilized construction entrances, • Temporary construction fencing will be installed around all avoided wetlands to ensure construction does not encroach on the wetland boundary. • BMPs recommended by the City of Carmel Storm Water Management Plan will be implemented to minimize pollutants carried from the project site in runoff. • BMPs will be regularly monitored for effectiveness using appropriate methods (visual observation, sampling) at appropriate intervals (e.g., daily or weekly) and corrected immediately if determined to not be effective.
BMP-4	Trash Management	All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the project site.
BMP-5	Pet Management	Project personnel will not be permitted to have dogs or cats in the project site.
BMP-6	Smoking Policy	Project personnel will not be permitted to smoke in the project site.

Number	Title	BMP/AMM Description
BMP-7	Construction Clean-up	After construction completion, any construction materials installed within the project boundary will be removed in its entirety.
BMP-8	Water Quality-Construction Equipment and Materials Management	All staging, maintenance, and storage of construction equipment will be performed in a manner to preclude any direct or indirect discharge of fuel, oil, or other petroleum products into jurisdictional waters. No other debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete or washings thereof, or other construction-related materials or wastes will be allowed to enter into or be placed where they may be washed by rainfall or runoff into jurisdictional waters. All such debris and waste shall be picked-up daily and properly disposed of at an appropriate site.
BMP-9	Spill Control Plans	Prior to the onset of work, the Corps will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures should a spill occur.
BMP-10	Avoidance of Water Features	No equipment will be operated in areas of flowing or standing water. No fueling, cleaning, or maintenance of vehicles or equipment will take place within any areas where an accidental discharge to jurisdictional waters may occur.
BMP-11	Water Quality Inspections	A water quality inspector will inspect the site before and after a qualifying rain event to ensure that stormwater BMPs are adequate.
BMP-12	Turbidity Monitoring	Turbidity monitoring will be performed during pipeline dismantling activities according to Caltrans Standard Specification 13-1.01D(5)(b) Water Quality Sampling and Analysis. Water quality monitoring will be performed to document changes in turbidity.
AMM-1	Pesticide Use	No pesticides of any kind will be used on the project site at any time during project implementation, with the exception of pre-authorized herbicide application to prevent the spread of the invasive pampas grass currently occurring on the project site.

Number	Title	BMP/AMM Description
AMM-2	Invasive Plant Management	All equipment including excavators, trucks, hand tools, etc., that may have come in contact with invasive plants or the seeds of these plants, will be carefully cleaned before arriving on the site and shall also be carefully cleaned before removal from the site to prevent spread of these plants.
AMM-3	Minimization of Disturbance	Disturbance or removal of vegetation will not exceed the minimum necessary to complete construction
AMM-4	Site Restoration	Site conditions will be returned to pre-construction contours and will be revegetated with native habitat-appropriate species. The applicant will develop a habitat restoration plan for areas of temporary disturbance and submit it to the US Army Corps of Engineers (Corps), the US Fish and Wildlife Service (Service) at least 14 days prior to project initiation. This plan will be developed in coordination with the Service and the California Department of Parks. The applicant will revegetate areas of temporary disturbance within the project site with an assemblage of native riparian, wetland, and upland vegetation suitable for the area. The applicant will use locally collected plant materials to the extent practicable. The applicant will control invasive, exotic plants to the maximum extent practicable. This measure will be implemented in all areas disturbed by activities associated with the project, unless the Corps and the Service determine that it is not feasible or practical.
AMM-5	Fill removal	Upon construction completion, all temporary fills would be removed in their entirety.
AMM-6	Worker Training-Biological Resources	Prior to project-implementation, all construction personnel working on vegetation removal, earthmoving, and/or construction activities will attend a mandatory environmental education program, led by an approved biologist. This program will include information regarding special status plant and animal species occurring within the project site.
AMM-7	Access Restrictions	a. To minimize harassment, injury, death, and harm in the form of temporary habitat disturbances, all project-related

Number	Title	BMP/AMM Description
		vehicle traffic will be restricted to established roads, construction areas, equipment staging, parking, and stockpile areas. b. The applicant will limit the number of access routes, size of staging areas, and the total area of the activity to the minimum necessary to achieve the project goals. The applicant will delineate Environmentally Sensitive Areas to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to California red-legged frog habitat; this goal includes locating access routes and construction areas outside of wetlands and riparian areas to the maximum extent practicable.
AMM-7	Endangered Species Act Fencing	Prior to the date of initial ground disturbance within the project site, equipment staging areas and work areas would be identified, surveyed by the USFWS-approved biologist, and clearly identified with 3-foot tall bright orange silt fencing that is trenched into the soil to a depth of 6 inches, and installed such that it angles away from the project site in an approximately 30% angle (either the entire fence profile or the top 12 inches). All construction access roads would be delineated with construction flagging. The fencing and flagging would be inspected by the approved biologist immediately after installation and maintained daily by the project proponent until the last day that construction equipment is at the project.
AMM-8	Construction Monitoring - Uplands	Prior to commencement of work each day, the biological monitor will check for animals under any equipment such as vehicles and stored pipes. In order to prevent inadvertent entrapment of terrestrial wildlife during the proposed project, all excavated, steep-walled holes or trenches more than 2 feet deep will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional 2-foot high vertical barrier, independent of exclusionary fences, may be used to further prevent the inadvertent entrapment of terrestrial wildlife. If it is not feasible to cover

Number	Title	BMP/AMM Description
		an excavation or provide an additional 2-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filed, they will be thoroughly inspected for trapped animals
AMM-9	Construction Monitoring-Lagoon	An approved biologist(s) will be onsite during all work within the south arm of the Carmel River Lagoon and during all activities that could result in impacts to special-status species. The approved biologist will have the authority to stop any work that may result in adverse impacts to special-status species. If determined to be necessary for project implementation and wildlife safety, only approved biologists will capture, handle, and monitor special-status species observed onsite. Otherwise, all wildlife will be allowed to leave the site of their own accord.
AMM-10	Vegetation Removal for Wildlife Observation	All vegetation which obscures the observation of wildlife movement within the impact areas will be completely removed by hand just prior to the initiation of ground moving activities to remove cover that might be used by listed species. The Service-approved biologist will survey these areas immediately prior to vegetation removal to find, capture and relocate any observed listed species, as approved by the Service.
AMM-11	Migratory Bird Protection	If vegetation removal or ground disturbance are scheduled to occur between February 15 and August 31, a preconstruction nesting bird survey of all suitable nesting habitat on the project site and within the zone of influence (the area immediately surrounding the project site that supports suitable nesting habitat that could be impacted by the project due to visual or auditory disturbance associated with the removal of vegetation and construction activities scheduled to occur during the nesting season) will be conducted by a qualified biologist within 14 days prior to commencement of vegetation removal or ground disturbance. If no nesting birds are observed during the survey, the vegetation removal and/or ground disturbance may commence as planned. If nesting birds are observed

Number	Title	BMP/AMM Description
		during the survey, a non-disturbance buffer of 50 feet for passerine birds and 250 feet for raptors will be established. This buffer will remain in place until such a time as the young have been determined (by a qualified biologist) to have fledged.
AMM-12	CRLF Protection – In-water work window	Work activities would be scheduled for times of the year when impacts to the California red-legged frog would be minimal. For example, work that would affect large pools that may support breeding will take place between May 1 and October 31, to the maximum extent practicable, in order to avoid the breeding season of the California red-legged frog. The applicant will avoid isolated pools that are important to maintain California red-legged frogs through the driest portions of the year, to the maximum degree practicable, during the late summer and early fall. Habitat assessments, surveys, and coordination between the Corps and the Service during project planning will be used to assist in scheduling work activities to avoid sensitive habitats during key times of the year.
AMM-13	CRLF Protection - Relocation	A US Fish and Wildlife Service-approved biologist will survey the project site no more than 48 hours before the onset of work activities. If the Service-approved biologist finds any life stage of the California red-legged frog and these individuals are likely to be killed or injured by work activities, the applicant will allow the Service-approved biologist sufficient time to move them from the site before work begins. The Service-approved biologist will relocate the California red-legged frogs the shortest distance possible to a location that contains suitable habitat and that will not be affected by activities associated with the proposed project. The relocation site should be in the same drainage to the extent practicable.
AMM-14	Smiths Blue Butterfly (SBB) Protection	a. During protocol-level rare plant surveys conducted on the project site, an approved botanist will also search for SBB host plant species. b. If construction activities are scheduled to occur during the June 15 to September 15 flight season, the approved

Number	Title	BMP/AMM Description
		biologist will conduct SBB surveys at the beginning and end of flight season. Additionally, the project biologist would survey for SBB during preconstruction surveys, monitor for SBB during all activities that occur within 300-feet of a SBB host plant during the flight season, and stop any work that may result in take of SBB. c. Temporary protective fencing or flagging would be installed around any SBB host plants if found within vegetation clearing areas. To the extent practical, fencing would be installed to create a buffer of 20 feet around each plant. The approved biologist would monitor installation of protective fencing/flagging prior to clearing of vegetation.
AMM-15	Marine Mammal Buffer	A 10-meter buffer will be established around all work conducted in/over the Carmel River Lagoon navigable waters. If a marine mammal comes within 10 meters of this work, all operations will cease until the marine mammal has left the buffer of its own volition.

CHAPTER 3. ENVIRONMENTAL CHECKLIST

A. SUMMARY OF PROJECT INFORMATION:

1. Project Title: Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE) Mitigation Pipeline Undergrounding Project

2. Lead Agency Name and Address:

   Carmel Area Wastewater District
   P.O. Box 221428
   3945 Rio Road
   Carmel, CA 93922

3. Contact Person, Email, and Phone Number:

   Patrick Treanor, Plant Engineer
   831 257-0436
   downstream@cawd.org

4. Project Location:

   The proposed project is located at the mouth of the Carmel River, just south of the town of Carmel, in unincorporated Monterey County (see Figure 1); it is located within and adjacent to the south arm of the Carmel Lagoon, north of Calle La Cruz.

5. Property Owner(s): Carmel Area Wastewater District; California Department of Parks and Recreation.

6. General Plan Designation: Wetlands and Coastal Strand, Agricultural Preservation[2]

7. Zoning: RC-D CZ, (Resources Conservation, Coastal Zone) CAP-D (CZ) (Coastal Agricultural Preserve, Coastal Zone)[3]

8. Project Description: See Chapter 2 for detailed project description.

9. Surrounding Land Uses and Setting:

   The project pipelines would run from the west side of the Carmel River Lagoon, through the southern arm of the Carmel River Lagoon, to the east side of the Carmel River Lagoon. On the east side of the lagoon, the new pipelines would connect with existing

[2] Monterey County Land Use Plan, Carmel Area, as amended, March 9, 1995
[3] Monterey County Zoning, Coastal Implementation Plan – Title 20 (accessed October 19, 2017)

pipelines extending to the CAWD's sewage treatment plant. On the wast side, the treated wastewater outfall would connect with the existing outfall that extends into the Pacific Ocean, while the sewage force main would be connected to the Calle La Cruz pump station, which serves the Carmel Meadows residential development. Nearby uses include residential, wetland preserve, mitigation bank, and recreation/open space uses. Carmel River State Beach lies to the west of the site.

10. Other Public Agencies whose Approval or Input May Be Needed:
    - US Fish and Wildlife Service (Section 7 Consultation, Append to Programmatic Consultation for CTS, Concurrence Letter for Not Likely to Adversely Affect species)
    - National Marine Fisheries Service (Section 7 Consultation with NMFS, Biological Opinion – issued on July 20, 2018)
    - State Historic Preservation Office (SHPO) / Tribes (Section 106 Consultation)
    - California Regional Water Quality Control Board #3 (401 Certification, SWPPP, NOI for Water Quality Order No. 2004-004 DWQ)
    - State of California Department of Parks and Recreation (Right of Entry permit)
    - California Department of Fish and Wildlife (Streambed Alteration Agreement [Section 1602], Notice of Intent)
    - US Army Corps of Engineers, Section 404 of the Clean Water Act (33 U.S.C. Section 1344) and Section 10 of the Rivers and Harbors Act (33 U.S.C. Section 403) (Nationwide Permit)
    - California Coastal Commission (Coastal Development Permit)
    - California Department of Transportation (Encroachment Permit).

B. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project as indicated by the checklists and responses contained on the following pages:

☐ Aesthetics	☐ Agriculture & Forest Resources	☐ Air Quality
☒ Biological Resources	☒ Cultural Resources	☐ Energy
☐ Geology & Soils	☐ Greenhouse Gas Emissions	☒ Hazards & Hazardous Materials
☒ Hydrology & Water Quality	☐ Land Use & Planning	☐ Mineral Resources
☒ Noise	☐ Population & Housing	☐ Public Services
☐ Recreation	☐ Transportation & Traffic	☒ Tribal Cultural Resources
☐ Utilities & Services Systems	☐ Wildfires	☒ Mandatory Findings of Significance

C. DETERMINATION:

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project; nothing further is required.

Signature | Date

Patrick Treanor, Plant Engineer

D. EVALUATION OF ENVIRONMENTAL IMPACTS:

Evaluation of Environmental Impacts

The following checklist is formatted consistent with CEQA Guidelines, Appendix G. A "***no impact"*** response indicates that the project would not result in an environmental impact in a particular area of interest, either because the resource is not present, or the project does not have the potential to cause an effect on the resource.

A "***less than significant***" response indicates that, while there may be potential for an environmental impact, the significance of the impact would not exceed established thresholds and/or that there are standard procedures or regulations in place that would apply to the project and hence no mitigation is required.

Responses that indicated that the impact of the project would be "***less than significant with mitigation***" mean that, although there is the potential for a significant impact, feasible mitigation measures would become conditions of approval for the project if it receives approval by the City Planning Commission.

A "***potentially significant impact***" response indicates that the impact would exceed established thresholds and that the impact could not be avoided by utilizing standard operating procedures and regulations, program requirements, or design features incorporated into the project or that additional analysis is required in an EIR.

Public comments on this Initial Study should focus on the accuracy and completeness of the analysis contained herein.

I. Aesthetics

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?			**X**	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?			**X**	
c) In nonurbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the Project is in an urbanized area, would the Project conflict with applicable zoning and other regulations governing scenic quality?			**X**	
d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?				**X**

Background:

The project pipelines would be placed underground across a narrow arm of the Carmel River Lagoon. The existing Lagoon pipeline crossing is shown on Figure 5. The project area's aesthetics are characterized by views of riparian vegetation, open waters of the Carmel River and Carmel River Lagoon, open agricultural fields, and single-family residences (on the Carmel Meadows ridgeline). Those residences would have the most prominent views of the project construction areas (see Figures 6-8). The project site is shielded from public views from Highway 1 and other local roadways outside of Carmel Meadows.

Discussion:

a. Scenic Vista - *Less than Significant Impact.* The project area is designated as visually "Sensitive" in the Monterey County General Plan (see Figure 14, Scenic Highway Corridors and Visual Sensitivity Map, January 26, 2010). However, most of the project would be subsurface, and not visible in any local views. Access roads and staging areas would be cleared of vegetation, and pipeline laydown areas and construction equipment would be visible from nearby houses during construction, creating temporary aesthetic impacts. The localized clearing of vegetation and temporary equipment use would temporarily alter the visual quality of the area, and the cleared areas would be allowed to revegetated after project

Figure 5: View of Existing Pipelines crossing Carmel River Lagoon

Figure 6: View of Project Area from Calle La Cruz houses

Figure 7: View of CAWD Pump Station Access Road from Calle La Cruz

Figure 8. View of Project Area from Calle la Cruz Pump station

construction is complete. Views of the cleared areas and other work areas would be limited to eastward and some northward facing houses in Carmel Meadows (see Figure 4). In addition, the project would include signage informing the public of the purpose and nature of the project, proposed post-construction restoration activities, and the project's anticipated completion date.

In the longer term, removal of the above-ground pipelines would improve views of the lagoon by eliminating a man-made visual element from the otherwise natural views. Therefore, the project's impact on scenic vistas and views would be **less than significant**.

b. Scenic Highway – *Less Than Significant Impact*. Highway 1, located southeast of the project area, is a designated Scenic Highway (see Figure 14, Scenic Highway Corridors and Visual Sensitivity map, Monterey County General Plan, January 26, 2010). In addition, Caltrans has designated Highway 1 from the San Luis Obispo County Line to State Route 68, just north of the project area, as a State Scenic Highway (http://www.dot.ca.gov/hq/LandArch/16_livability/scenic_highways/route1.htm). The site is not visible from Highway 1. Additionally, as described in Item a), above, most of the project would be subsurface, and the surface elements would be limited to temporary vegetation clearing and staging during construction, with limited visibility to the general public. Therefore, the project would have a **less-than-significant impact** on scenic highways.

c. Visual Character – *Less than Significant Impact.* As described in Item a) above, impact on the proposed project on visual quality of the area would be **less than significant**.

d. Light and Glare – *No Impact.* The project does not propose using any lighting and nighttime construction is not anticipated. If unusual circumstances required some evening work, this would be of short duration (a few days) and would not adversely affect nearby residents. Therefore, the proposed project would have **no impact** on light and glare.

II. Agricultural and Forestry Resources

Would the project

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Background:

The project access road runs adjacent to an area designated for agricultural use in the Monterey County General Plan Land Use Element. However, that area is currently owned by the California Department of Parks and Recreation (wetlands preserve) and is no longer in agricultural use. In addition, no construction or other disturbance is proposed. The project construction area is not in agricultural use and is not under a California Land Conservation (Williamson Act) contract. No forest resources exist on or near the site.

Discussion:

a, b. Farmland, Williamson Act - ***No Impact.*** The project would have no impact on conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program because no such designated lands are mapped on the corridor. No portions of the site are not under a Williamson Act Contract. Therefore, the project would result in **no impact** on farmland, land zoned for agricultural use, and/or Williamson Act contracts.

c, d. Forest Lands – ***No Impact.*** The project would not affect forest land or forest zoning because no such lands or zoning exist or are proposed on the site.

e. Conversion of Farmland – ***No Impact.*** The proposed project would not involve changes in the existing environment that could result in any conversion of Farmland to a non-agricultural use.

III. Air Quality

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?			X	
b) Result in a cumulatively considerable net increase of any criteria for which the Project region is non-attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

Background:

This section describes existing air quality conditions in the area of the project site pertaining to meteorology, ambient monitoring data, air quality regulations and other factors that influence ambient air pollutant concentrations. This section analyzes potential construction impacts associated with the project for comparison to applicable CEQA significance thresholds. The project is a replacement project and would not result in an operational emissions increase, therefore, operational impacts are not further discussed. The analysis was completed in accordance with the Monterey Bay Air Resources District (MBARD) *CEQA Air Quality Guidelines* (February 2008).[4]

The air quality analysis includes the estimation of construction emissions such as volatile organic compounds (VOC) as reactive organic gases (ROG)[5], nitrogen oxides (NOx), particulate matter less than 10 micrometers (coarse particulate or PM10), and particulate matter less than 2.5 micrometers (fine particulate or PM2.5)[6].

[4] *Monterey Bay Air Resources District, CEQA Air Quality Guidelines, February 2008, https://www.mbard.org/files/f665829d1/CEQA_full+%281%29.pdf*

[5] VOC means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. ROG are any reactive compounds of carbon, excluding methane, CO, CO2 carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. The terms VOC and ROG are often used interchangeably.

[6] PM10 and PM2.5 consists of airborne particles that measure 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM10 and PM2.5 represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects.

The project site is in unincorporated Monterey County, south of the City of Carmel. Monterey County is located within the North Central Coast Air Basin (NCCAB), which also encompasses Santa Cruz and San Benito County. The MBARD is responsible for air monitoring, permitting, enforcement, long-range air quality planning, regulatory development, as well as education and public information activities related to air pollution, as required by the California Clean Air Act and Amendments and the Federal Clean Air Act and Amendments.

Existing Setting

The semi-permanent high-pressure cell in the eastern Pacific is the basic controlling factor in the climate of the NCCAB. In the summer, the high-pressure cell is dominant and causes persistent west and northwest winds over the entire California coast. Air descends in the Pacific High forming a stable temperature inversion of hot air over a cool coastal layer of air. The onshore air currents pass over cool ocean waters to bring fog and relatively cool air into the coastal valleys. The warmer air aloft acts as a lid to inhibit vertical air movement.

The generally northwest-southeast orientation of mountainous ridges tends to restrict and channel the summer onshore air currents. Surface heating in the interior portion of the Salinas and San Benito Valleys creates a weak low pressure which intensifies the onshore air flow during the afternoon and evening.

In the fall, the surface winds become weak, and the marine layer grows shallow, dissipating altogether on some days. The air flow is occasionally reversed in a weak offshore movement, which allows pollutants to build up over a period of a few days. It is most often during this season that the north or east winds develop to transport pollutants from either the San Francisco Bay area or the Central Valley into the NCCAB.

During the winter, the Pacific High migrates southward and has less influence on the NCCAB. Air frequently flows in a southeasterly direction out of the Salinas and San Benito Valleys, especially during night and morning hours. Northwest winds are nevertheless still dominant in winter, but easterly flow is more frequent. The general absence of deep, persistent inversions and the occasional storm systems usually result in good air quality for the NCCAB as a whole in winter and early spring.[7]

The California Air Resources Board (CARB) maintains air quality monitoring data for the MBARD-operated Carmel Valley monitoring station, which is the closest monitoring station to the project site. The monitoring station is located at 35 Ford Road in Carmel Valley, which is approximately 11 miles southeast of the project site. The monitoring station currently measures the ambient concentrations of ozone and PM2.5. Eight-hour and hourly ozone measurements show no exceedances of California Ambient Air Quality Standards (CAAQS) or the National Ambient Air Quality Standards (NAAQS) between 2017 and 2019. PM2.5

[7] Monterey Bay Air Resources District, CEQA Air Quality Guidelines, February 2008, https://www.mbard.org/files/f665829d1/CEQA_full+%281%29.pdf

measurements show one exceedance of the 24-hour NAAQS in 2017, four exceedances in 2018, and no exceedances in 2019. PM2.5 measurements show no exceedances of the annual CAAQS between 2017 and 2019.[8]

The Monterey County portion of the NCCAB is designated as a non-attainment-transitional area for CAAQS for ozone and as a non-attainment area for CAAQS for PM10. All other pollutants are in attainment or unclassified for all other State and federal standards.[9]

Sensitive Receptors

The MBARD *CEQA Air Quality Guidelines* define a sensitive receptor as "Any residence including private homes, condominiums, apartments, and living quarters; education resources such as preschools and kindergarten through grade twelve (k-12) schools; daycare centers; and health care facilities such as hospitals or retirements and nursing homes." For the project, the closest sensitive receptors are homes in the Carmel Meadows neighborhood approximately 100 feet from the ground disturbance and work area on the western side of the project site. No schools are within 1,000 feet of the project site.

Significance Criteria

The MBARD has developed a threshold of significance for PM10 emissions during construction activities of 82 pounds per day for CEQA purposes.[10] In regards to ozone and ozone precursors (ROG and NOx), the MBARD states that construction emissions from construction projects using typical construction equipment such as dump trucks, scrapers, bulldozers, compactors and front-end loaders that temporarily emit precursors of ozone are accommodated in the emission inventories of State- and federally-required air plans and would not have a significant impact on the attainment and maintenance of ozone State and federal standards. For the purposes of the project, construction PM10 emissions would have a potentially significant air quality impact if they exceed the 82 pounds per day. Emissions of ozone precursors (ROG and NOx) and PM2.5 emissions are estimated for informational purposes.

Discussion:

a. Conflict with or obstruct implementation of the applicable air quality plan - *Less than Significant Impact.* The MBARD's *2012-2015 Air Quality Management* Plan[11] is the seventh update to the 1991 *Air Quality Management Plan and* is the applicable air quality plan to the project site. The MBARD uses population and vehicle miles traveled (VMT)

[8] California Air Resources Board, ADAM: Air Quality Data Statistics, https://www.arb.ca.gov/adam/topfour/topfourdisplay.php

[9] California Air Resources Board, Area Designation Maps/State and National, https://www.arb.ca.gov/desig/adm/adm.htm

[10] Monterey Bay Air Resources District, CEQA Air Quality Guidelines, February 2008, https://www.mbard.org/files/f665829d1/CEQA_full+%281%29.pdf

[11] Monterey Bay Air Resources District, 2012-2015 Air Quality Management Plan, March 15, 2017, http://mbard.org/wp-content/uploads/2017/03/2012-2015-AQMP_FINAL.pdf

projections from the Association of Monterey Bay Area Governments (AMBAG) as the basis for air quality planning and develops an emissions inventory for the NCCAB from AMBAG population forecasts. The project would not result in increases in population, housing, or other development and therefore would not increase the AMBAG population forecast. Thus, the project would not conflict with or obstruct the MBARD's *2012-2015 Air Quality Management Plan*. Therefore, the project would have **no impact**.

b. Cumulatively considerable increase of criteria pollutant for which the project region is in non-attainment - *Less than Significant Impact.* Although temporary in duration, construction emissions would be generated as a result of the project. The project is a replacement project and would not result in an operational emissions increase.

Construction of the project would take approximately eight months to complete, with two months of mobilization, two months of Horizontal Directional Drilling (HDD), two months for pipeline tie-in, two weeks of work directly within the lagoon, and 1.5 months of demobilization. Crews would typically work from approximately 6:00 a.m. to 5:00 p.m., Monday through Friday.

Construction equipment would include but is not limited to: water trucks, HDD drill rig and associated drilling and fluid handling equipment, a skid steer, excavators, cranes, casing jacking equipment, and assorted other hand tools and equipment. Up to three haul truck round trips per day would be needed to export soil material and existing pipeline materials, and to import construction materials for the new pipeline. Approximately five to 10 workers would be on site per day, which would generated approximately 20 worker trips per day.

Construction emissions were estimated with the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Road Construction Emissions Model (Version 9.0.0).[12] The Road Construction Emissions Model is recommended for linear construction projects such as roadways, bridges, pipelines, transmission lines and levees. Estimated construction emissions from the project are displayed in Table AQ-1. Detailed modeling results are included in Appendix A to this IS.

Table AQ-1: Estimated Maximum Daily Construction Emissions

Condition	ROG	NOx	PM10	PM2.5
Maximum Daily Emissions (pounds)	2.9	26.7	11.4	3.3
MBARD Daily Threshold (pounds)	--	--	82.0	--
Significant?	No	No	No	No

Source: SMAQMD Road Construction Emissions Model Version 9.0.0
Note: See Air Quality Appendix for detailed emission estimates and assumptions

[12] Sacramento Metropolitan Air Quality Management District, Road Construction Emissions Model Version 9.0.0, May 2018, http://www.airquality.org/businesses/ceqa-land-use-planning/ceqa-guidance-tools

As shown in Table AQ-1, estimated maximum daily construction emissions of PM10 are below the MBARD's daily significance threshold. In regards to ozone precursors (ROG and NOx), the MBARD states that construction emissions from construction projects using typical construction equipment such as dump trucks, scrapers, bulldozers, compactors and front-end loaders that temporarily emit precursors of ozone are accommodated in the emission inventories of State- and federally-required air plans and would not have a significant impact on the attainment and maintenance of ozone State and federal standards. The proposed project would not require the use of unusually high emitting construction equipment and construction would be temporary (eight months). Therefore, the project would have a **less-than-significant** impact.

Construction activities, if not properly implemented, could result in substantial emissions of fugitive dust that would be a nuisance and could create localized health impacts. The MBARD requires construction projects to comply with the fugitive dust prohibitions identified in Rule 403 (Particulate Matter). In order to prevent and control fugitive dust emissions and ensure compliance with MBARD rules, construction activities associated with the project would adhere to the following best management practices listed in BMP's 1 and 2 on Table 1 in the Project Description. This would reduce dust-emission impacts to a **less-than-significant** level.

c. Exposure of sensitive receptors to substantial pollutant concentrations *Less than Significant Impact.* Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. The CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive populations.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences, resulting in greater exposure to ambient air quality conditions. Work areas would be established on the east and west sides of the lagoon; an in-water work area would be established in the lagoon to facilitate dismantling activities. The closest residences to the project site are in the Carmel Meadows neighborhood and construction activities could occur as close as approximately 100 feet away from the closest residence. Approximately eight residences are within 500 feet of the project work areas. No schools, day care centers or other types of sensitive receptors exist within 1,000 feet of the project site.

A toxic air contaminant (TAC) is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air. However, their high toxicity or health risk may pose a threat to public health even at very low concentrations. In general, for those TACs that may cause cancer, there is no concentration that does not present some

risk. This contrasts with the criteria pollutants for which acceptable levels of exposure can be determined and for which the State and federal governments have set ambient air quality standards.

Project construction equipment would emit diesel particulate matter (DPM)[13]. Studies have demonstrated that DPM is a human carcinogen and that chronic (long-term) inhalation exposure to DPM poses a chronic health risk. The project is a short-term (eight-month) construction project that would use diesel construction equipment intermittently and would not generate substantial TAC emissions. The general wind flow is from the west to east. The project site is located to the north of the existing sensitive receptors and thus, the general wind flow is away from the receptors towards the vacant land to the east. Implementation of BMPs 1 and 2 on Table 1 in the Project Description would reduce the potential for localized health impacts from fugitive dust to a **less-than-significant** level.

d. Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people – *Less than Significant Impact*. The MBARD's Rule 402 (Nuisances) prohibits the discharge of air contaminants which cause injury, detriment, nuisance, or annoyance to any considerable number of persons. Odors from combustion exhaust emissions would be minimally perceptible and temporary. The project would be required to comply with MBARD's Rule 402 Nuisance. Therefore, the project would have a **less-than-significant** impact.

[13] In August of 1998, CARB identified particulate emissions from diesel-fueled engines as a toxic air contaminant. CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. The document represents a proposal to reduce diesel particulate emissions, with the goal to reduce emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aims to require the use of state-of-the-art catalyzed diesel particulate filters and ultra-low sulfur diesel fuel on diesel-fueled engines.

Diesel particulate matter (DPM) is the most complex of diesel emissions. Diesel particulates, as defined by most emission standards, are sampled from diluted and cooled exhaust gases. This definition includes both solid and liquid material that condenses during the dilution process. The basic fractions of DPM are elemental carbon; heavy hydrocarbons derived from the fuel and lubricating oil and hydrated sulfuric acid derived from the fuel sulfur. DPM contains a large portion of the polycyclic aromatic hydrocarbons found in diesel exhaust. Diesel particulates include small nuclei particles of diameters below 0.04 micrometers (µm) and their agglomerates of diameters up to 1 µm.

IV. Biological Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies or regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?		X		
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?		X		
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Background:

Studies Conducted

A Biological Resource Analysis was prepared for the project by Johnson Marigot Consulting, LLC (JMC) in February 2021. This section of the Initial Study is based entirely on the findings of that report, which is included as Appendix B to this IS/MND.

Site surveys were conducted by JMC biologists on the project site on November 10, 2014 and September 13 and 14, 2017, and September 4, 2020. Surveys included walking the project site to characterize current site conditions including vegetation, topography, and the presence of suitable resting, nesting, and/or roosting wildlife habitat. In addition, general current and historic uses of the site were noted, as well as general observations of neighboring property uses.

Prior to site investigations, literature reviews were conducted of known and potential special-status species, including query of the California Natural Diversity Database (CNDDB), the Inventory of Rare, Threatened, and Endangered Plants of California (CNPS), and the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation tool (IPaC) for special status species having a range that overlaps with the project site boundaries. In addition, the National Marine Fisheries Service (NMFS) West Coast Region California Species List was reviewed for species observed on the same quadrangle as the project site (Monterey Quad).

Separate surveys were conducted for rare plants by LSA Associates in 2018 and JMC biologists in 2020. An arborist survey was conducted by LSA Associates in March 2018. The methods and results of all of these surveys are described in the JMC 2021 Biological Resource Analysis. As described in Table 2 in the Project Description, the Spring and Summer immediately prior to project implementation, protocol-level rare plant surveys will be conducted on the Action Area. Rare plant surveys will be conducted by a qualified botanist, in accordance with all applicable survey guidelines including those published by USFWS (USFWS 1996), CDFW (CDFW 2000, 2009) and CNPS (CNPS 2001). If determined to be necessary, reference site surveys will be conducted to confirm plant phenology (flowering periods).

A Wetlands Delineation was conducted in September 2020 by JMC biologists to determine the extent of Waters of the US on the project site. JMC biologists conducted a field survey to determine the location and extent of potential waters of the U.S. within the project site. The wetland delineation was conducted using the methods described in the *Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987), supplemented with guidance as directed by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps 2008).

Existing Site Conditions

Topography

Topography within the project area is variable, with elevations ranging between 7 feet and 62 feet relative to North American Vertical Datum of 1988 (NAVD 88). On the east side of the Carmel River Lagoon, elevations range from 19 feet adjacent to the CAWD Treatment Plant to 7 feet at the lagoon. On the west side of the lagoon, there is a rapid elevation gain to 62 feet, which then tapers to 25 feet at the western boundary of the project.

Vegetation Communities

The predominant vegetation community within the project site is valley foothill riparian and coastal scrub. The project site includes a portion of the south arm of the Carmel River Lagoon, a tidal estuary connected to the Pacific Ocean, saline emergent wetlands, and fresh emergent wetlands. There is also a small barren area where the CAWD plant entrance road and adjacent pullout intersects the eastern edge of the project site. (see Figure 9). These vegetation communities are described below.

Valley Foothill Riparian
Riparian areas are the vegetation communities that occur adjacent to rivers, streams, and lakes that act as the transition between terrestrial and aquatic ecosystems. The valley foothill riparian vegetation community dominates the central and eastern portion of the project site adjacent to the Carmel River Lagoon. The dense canopy (70-100% canopy cover) is predominately willows (*Salix spp*.), coast live oak (*Quercus agrifolia*), and cottonwood (*Populus fremontii*), with sub-dominant species including elderberry (*Sambucus nigra*), and dogwood (*Cornus sericea*). The understory is densely vegetated and is dominated by California blackberry (*Rubus ursinus*) and poison oak.

The valley foothill riparian vegetation community in the eastern portion of the project site exhibits evidence of prior disturbance and is in an early successional stage dominated by ruderal vegetation. These species may be native or non-native but are often thought of as "weedy" species. Dominant species in this area include non-native herbaceous species such as Italian thistle (*Carduus pycnocephalus*), poison hemlock (*Conium maculatum*), bristly ox-tongue (*Helminthotheca echioides*), and Canada horseweed (*Erigeron canadensis*), as well as non-native grasses such as Italian wildrye (*Festuca perennis*), slender wild oat (*Avena barbata*), and rip-gut brome (*Bromus diandrus*). A small population of native plants occurs within the shrub layer and includes species such as coyote brush (*Baccharis pilularis*), California blackberry, and California sage (*Artemisia californica*).

Coastal Scrub
The southwestern portion of the project site is dominated by coastal scrub. The onsite scrub habitat is densely vegetated and is dominated by Monterey cypress (*Hesperocyparis macrocarpa*), California sage, poison oak, coyote brush, poison hemlock, and black mustard (*Brassica nigra*).

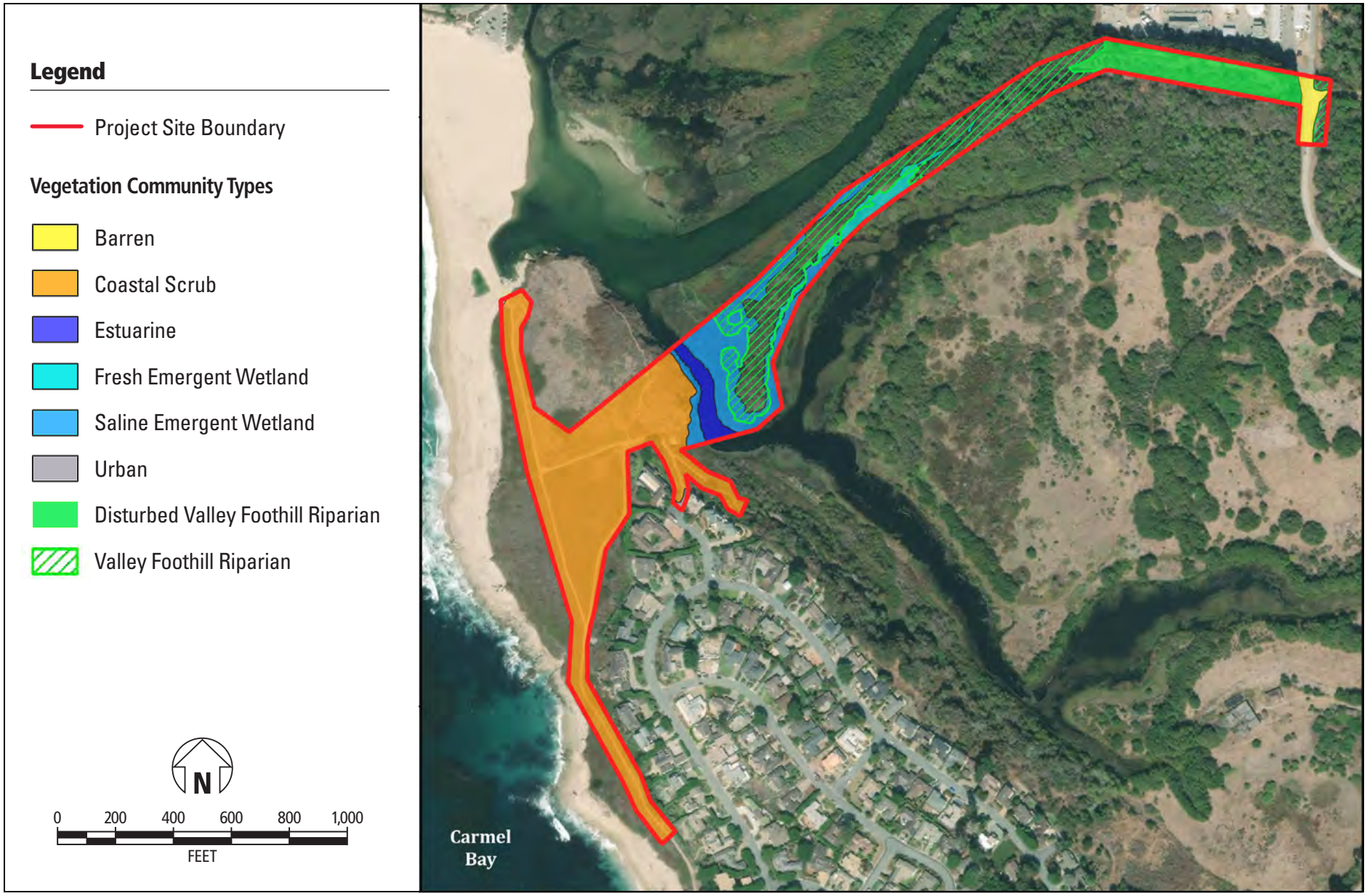

Figure 9

Vegetation Communities

Source: Johnson Marigot Consulting, LLC

Aquatic Resources

Approximately 3.74 acres of potential Waters of the US (WOTUS) have been mapped on the project site, including 0.64 acre of seasonal wetland, 2.63 acre of perennial wetland, 0.47 acre of navigable waters, and 0.001 acre of drainages.

Seasonal Wetlands
Seasonal wetlands occur throughout the central portion of the project site. These wetlands are dominated by brown-headed rush (*Juncus phaeocephalus*), salt grass (*Distichlis spicata*), tall flatsedge (*Cyperus eragrostis*), narrow hairgrass (Calamagrostis stricta), gumweed (*Grindelia camporum*), and rabbitsfoot grass (*Polypogon monspeliensis*), with lesser common species including hyssop loosestrife (*Lythrum hyssopifolia*), common spikerush (*Eleocharis macrostachya*), sneezeweed (*Helenium puberulum*), and bird's foot trefoil (*Lotus corniculatus*). The seasonal wetland hydrology is supported by shallow groundwater and seasonal ponding associated with direct rainfall. When lagoon water elevations are high these areas may also experience inundation in the early winter prior to the breach of the sandbar.

Perennial Wetlands
The southwestern portion of the project site is dominated by perennial wetlands. Perennial ponding occurs as a result on the topographic low elevations resulting in groundwater inundation and flooding associated with the lagoon. At the time of the September site visit, the perennial wetlands were still inundated with several inches of water. Dominant species in the perennial wetland included Santa Barbara sedge (*Carex barbarae*), fleshy jaumea (*Jaumea carnosa*), spotted ladies thumb (*Persicaria maculosa*), dotted smartweed (*Persicaria punctata*), and hardstem bulrush.

Aquatic Resources
Approximately 3.74 acres of potential Waters of the US have been mapped on the project site, including 0.64 acre of seasonal wetland, 2.63 acre of perennial wetland, 0.47 acre of navigable waters, and 0.001 acre of drainages.

Navigable Waters
The central portion of the project site is dominated by the Carmel River Lagoon channel. A canoe or kayak could utilize the Carmel River Lagoon for recreation purposes during most of the year. This area is seasonally navigable dependent on the status of the lagoon (i.e. open to the ocean or closed). The open water portion of the channel (herein identified as "navigable waters") was approximately 60-70 feet wide and just over 6 feet deep at the time of the September site visit. Dense stands of ditchgrass (*Ruppia maritima*) were observed within the navigable waters.

Discussion:

a. Special-Status Species – *Less than Significant Impact with Mitigation.*

Regulatory Context
Special-status species include species considered to be rare by federal and/or state resource agencies (USFWS, NMFS, CDFW) and/or the scientific community (CNPS) and are accordingly legally protected via the federal, state, and/or local laws defined below.

Endangered Species Act (ESA): The USFWS and NMFS (Resource Agencies), with regulatory authority over listed plants, wildlife, and fish, oversee the ESA (50 CFR § 402.7, Section 305(b)(4)(B). The ESA prohibits the "take" of any wildlife species listed as threatened or endangered, by the Resource Agencies, including the destruction of habitat that could hinder species recovery. The Resource Agencies administer the ESA and authorize take through issuance of Biological Opinions in consultation with the federal action agency (e.g., Corps or FEMA).

Migratory Bird Treaty Act (MBTA): The MBTA of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755; as amended in 1936; 1960, 1968, 1969, 1974, 1978, 1986, and 1998) prohibits the take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of any migratory bird or any part, nest, or egg of any such bird.

Magnuson-Stevens Fishery Conservation and Management Act (MSA): The MSA (16 USC §§ 1801–1884) was passed in 1976 to conserve and manage U.S. fishery resources, prevent overfishing, rebuild overfished stocks, and facilitate long-term protection of Essential Fish Habitat (EFH). The MSA (Section 3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). An "adverse effect" on EFH means any impact which reduces either the quality or quantity of EFH (50 CFR 600.910(a)). A subset of EFH are Habitat Areas of Particular Concern (HAPCs). These areas provide important ecological functions and/or are especially vulnerable to degradation and can be designated based on either specific habitat types or discrete areas. Estuaries and submerged aquatic vegetation (e.g., eelgrass) are both HAPCs.

The MSA is implemented by regional Fishery Management Councils that work with NOAA Fisheries to develop and implement Fisheries Management Plans (FMPs). The FMPs must identify the EFH for each fishery within their jurisdiction. Section 305(b) of the MSA directs federal agencies to consult with NOAA Fisheries on all actions or proposed actions that may adversely affect EFH to obtain avoidance and minimization consultation as well as conservation and enhancement recommendations.

Marine Mammal Protection Act: The Marine Mammal Protection Act (MMPA) establishes a federal responsibility to conserve marine mammals, with management vested in the Department of Commerce (NOAA) for cetaceans (whales, dolphins, and porpoises) and

pinnipeds (seals and sea lions) (with the exception of walrus) and the Department of the Interior (USFWS) for all other marine mammals. The MMPA of 1972 prohibits the "take" of any marine mammal (including cetaceans, pinnipeds, sirenians [manatees and dugongs], sea otters, and polar bears) within U.S. waters and/or by U.S. citizens on the high seas, as well as the importation of marine mammals and marine mammal products into the U.S. Pursuant to the MMPA, "take" is defined as the act of hunting, killing, capture, and/or harassment of any marine mammal, or the attempt at such. Protections afforded by the MMPA extend to species without listing under FESA or the California Endangered Species Act. Exceptions are established for incidental take of small numbers of marine mammals where the take would be limited to harassment. An authorization for incidental take of marine mammals is called an Incidental Harassment Authorization (IHA).

Under the 1994 Amendment to the MMPA, harassment is statutorily defined as "any act of pursuit, torment, or annoyance which has the potential to injure or disturb a marine mammal or marine mammal stock in the wild." Harassment that has the potential to injure a marine mammal is further defined as Level A harassment. Harassment that has the potential to disturb a marine mammal by disrupting behavioral patterns including, but not limited to migration, breathing, nursing, breeding, feeding, or sheltering, but does not have the potential to injure a marine mammal, is defined as Level B harassment.

The National Marine Sanctuaries Act: The National Marine Sanctuaries Act (NMSA) authorizes the Secretary of Commerce to designate and protect areas of the marine environment with special national significance due to their important conservation, recreational, ecological, historical, scientific, cultural, archeological, educational or esthetic qualities. The primary objective of the NMSA is to protect marine resources, such as coral reefs, sunken historical vessels or unique habitats. The NMSA directs the NOAA to create national marine sanctuaries in special ocean areas of the United States and develop plans and regulations for their management and protection.

The State Water Resources Control Board (SWRCB): The SWRCB and its nine regional water boards (Regional Water Quality Control Boards) have been charged with the protection and enhancement of water quality in the state of California. Pursuant to Section 401 of the CWA and the Porter Cologne Water Quality Control Act (Porter Cologne), the Regional Water Quality Control Board (RWQCB) has authority to regulate discharges of fill and dredged material into Waters of the State. Pursuant to Porter Cologne, waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." This is generally taken to include all waters of the U.S., all surface waters not considered to be waters of the U.S. (non-jurisdictional wetlands), groundwater, and territorial seas (with territorial boundaries extending 3.0 nautical miles beyond outermost islands, reefs, and rocks and includes all waters between the islands and the coast).

California Fish and Game Code 1602 (Lake and Streambed Alteration): Pursuant to California Fish and Game code, the CDFW maintains jurisdiction over rivers, streams and lakes; this jurisdiction includes to all features exhibiting bed, bank, and channel (the extent of CDFW's jurisdiction on these features extends to the top of bank or the edge of riparian canopy - whichever is greater). This Fish and Game Code requires that any project that

substantially diverts or obstructs the natural flow of a river, stream, or lake or substantially changes the bed or bank of a river, stream, or lake notifies CDFW prior to project implementation.

California Endangered Species Act (CESA): CESA prohibits the "take" of any wildlife species listed as endangered and threatened by the state of California. Section 2090 of the CESA requires state agencies to comply with regulations for protection and recovery of listed species and to promote conservation of these species. The CDFW administers the act and authorizes "take" through section 2081 agreements (except for designated "fully protected species"). Regarding rare plant species, the CESA defers to the California Native Plant Protection Act of 1977.

California Native Plant Protection Act & California Fish and Game Code (Plants): The California Native Plant Society (CNPS) designates California Rare Plants through a ranking system. Rank 1A, 1B, and 2 meet the definitions established in Sec. 1901, Chapter 10 (Native Plant Protection Act of 1977) or Secs. 2062 and 2067 of the CESA and are eligible for state listing (CNPS Inventory, 2015).

California Fish and Game Code (Fully Protected Species): To provide additional protections for wildlife that is rare or faces potential extinction, California Fish and Game Code Sections 3511, 4700, 5050, and 5515 designates "fully protected" status for specific birds, mammals, reptiles and amphibians, and fish. Fully protected species cannot be taken or possessed at any time and no licenses or permits can be issued for their take. Exceptions are established for scientific research collection, relocation of the bird species for the protection of livestock, and take resulting from recovery activities for state-listed species.

California Fish and Game Code (Birds): California Fish and Game Code (Section 3503) prohibits the take of nest or eggs of any bird. Raptors and other fully protected bird species are further protected in Sections 3503.5 and 3511, which states that raptors/fully protected birds or parts thereof may not be taken or possessed at any time.

California Fish and Game Code (Species of Special Concern): A species of special concern is a designation given by the state to a native species that meets one or more of the following criteria: extirpated for the state; federally (but not state) listed; experiencing, or formerly experienced, population declines or range restrictions; has naturally small populations at high risk of declines.

California Fish and Game Code (Marine Mammals): Section 4500 of the California Fish and Game Code addresses take of marine mammals, stating that it is unlawful to take any marine mammal except in accordance with provisions of the MMPA of 1972 or provisions of Title 50 of the Code of Federal Regulations or pursuant to subdivision (b) of this section.

Analysis

A search of the CNDDB and the CNPS Inventory of Rare, Threatened, and Endangered Plants of California was conducted for state and federally listed and candidate species, as

well as CNPS-ranked species known to occur in the vicinity of the property. The species identified in this search were compiled in tables (Tables BIO-1 and BIO-2) and evaluated for likelihood of occurrence on the project site. The potential for species to occur was classified as high, moderate, or low, using the definitions provided below. When a species was not expected to occur on or adjacent to the project site, the potential for occurrence was identified as "none."

> **High**: The potential for a species to occur was considered high when the project site was located within the range of the species, recorded observations were identified within known dispersal distance of the project site, and suitable habitat was present on the project site.
>
> **Moderate**: The potential for a species to occur was considered moderate when the project site was located within the range of the species, recorded observations were identified nearby but outside known dispersal distance of the project site, and suitable habitat was present on the project site. A moderate classification was also assigned when recorded observations were identified within known dispersal distance of the project site but habitat on the project site was of limited or marginal quality.
>
> **Low**: The potential for a species to occur was considered low when the project site was within the range of the species, but no recorded observations within known dispersal distance were identified, and habitat on the project site was limited or of marginal quality. The potential for occurrence was also classified as low when the project site was located at the edge of a species' range and recorded observations were extremely rare, but habitat in the project site was suitable.

Special-Status Plants

According to the CNDDB and the CNPS Inventory of Rare, Threatened, and Endangered Plants of California, a total of 37 special-status plant species are known to occur in the vicinity of the project site\. Of these regionally occurring special-status plant species, 8 require specialized habitats that *do not* occur within the project site's valley foothill riparian or coastal scrub vegetation communities including valley and foothill grassland, coniferous forest, broadleafed upland forest, chaparral, and cismontane woodland. The remaining 29 special-status plant species (see Table BIO-1 below) have the potential to occur on the project site.

Rare plant surveys were conducted on a 7.2-acre portion of the project site in 2017 and fall surveys for some rare plants were conducted in 2020. While no special-status plant species were observed on the project site during the 2017 or 2020 floristic surveys, protocol-level rare plant surveys have not been completed throughout the entire project site. While no special-status plant species were observed on the project site during the 2017 or 2020 floristic surveys investigation, rare plant surveys were not conducted throughout the entire project site. In the absence of protocol-level rare plant surveys on the project site, the proposed project may result in **significant impacts** to special-status plants, including trees. These impacts can be reduced to a **less-than-significant** *level* with the implementation of

BMPs and AMMs listed in Table 2 in the Project Description, as well as mitigation measures BIO-1 and BIO-2, below.

Table BIO-1. Special Status Plant Species with Potential to Occur on the Project Site

Scientific Name	Common Name	Status	Potential for Occurrence
Allium hickmanii	Hickman's Onion	CNPS	Low
Arctostaphylos hookeri ssp. *hookeri*	Hooker's Manzanita	CNPS	Low
Arctostaphylos pumila	Sandmat Manzanita	CNPS	Low
Arenaria paludicola	Marsh Sandwort	FE, CE, CNPS	Low
Astragalus tener var. *titi*	Coastal Dunes Milk-Vetch	FE, CE, CNPS	Low
Castilleja ambigua ssp. *insalutata*	Pink Johnny-Nip	CNPS	Low
Chorizanthe pungens var. *pungens*	Monterey Spineflower	FT, CNPS	Low
Clarkia jolonensis	Jolon Clarkia	CNPS Rank 1B.2	Low
Collinsia multicolor	San Francisco Collinsia	CNPS Rank 1B.2	Low
Cordylanthus rigidus ssp. *littoralis*	Seaside Bird's-Beak	CE, CNPS	Low
Delphinium hutchinsoniae	Hutchinson's Larkspur	CNPS	Low
Ericameria fasciculata	Eastwood's Goldenbush	CNPS	Low
Eriogonum nortonii	Pinnacles Buckwheat	CNPS	Low
Fritillaria liliacea	Fragrant Fritillary	CNPS	Low
Gilia tenuiflora ssp *arenaria*	Monterey Gilia	FE, CT, CNPS	Low
Horkelia cuneata ssp. *sericea*	Kellogg's Horkelia	CNPS	Low
Layia carnosa	Beach Layia	FE, CE, CNPS	Low
Malacothamnus palmeri var. *involucratus*	Carmel Valley Bush-Mallow	CNPS	Low
Malacothrix saxatilis var. *arachnoidea*	Carmel Valley Malacothrix	CNPS	Low
Meconella oregana	Oregon Meconella	CNPS	Low
Microseris paludosa	Marsh Microseris	CNPS	Low
Monardella sinuata ssp. *nigrescens*	Northern Curly-Leaved Monardella	CNPS	Low
Pinus radiata	Monterey Pine	CNPS	High
Piperia yadonii	Yadon’s Rein Orchid	FE, CNPS	Low

Potentilla hickmanii	Hickman's Cinquefoil	FE, CE, CNPS	Low
Trifolium hydrophilum	Saline Clover	CNPS	Low
Trifolium polyodon	Pacific Grove Clover	CR, CNPS	Low

Special Status Wildlife

According to the CNDDB, the USFWS IPac tool, the NMFS West Coast Region California Species List for Monterey Quad, personal observation, and existing literature, a total of 37 special-status wildlife species are known to occur in the vicinity of the project site or have ranges that overlap with the project site. The project site does not provide suitable habitat for 26 of the 37 regionally known special-status species identified as occurring in the vicinity of the project site due to lack of suitable habitat and/or lack of range overlap. Therefore, a total of 11 known special-status species, MSA managed fish, and MBTA protected birds have the potential to occur within the project site. These are shown on Table BIO-2 and potential impacts are summarized below.

Table BIO-2: Special Status Wildlife Species with Potential to Occur on the Project Site

Common Name	Scientific Name	Status	Potential for Occurrence
Amphibians			
California Red-Legged Frog	*Rana draytonii*	FT, CSC	High
Coast Range Newt	*Taricha torosa torosa*	CSC	Low
Birds			
White-tailed Kite	*Elanus leucurus*	CFP	High
Migratory Birds	--	MBTA	High
Fish			
Steelhead (South-Central California Coast DPS)	*Oncorhynchus mykiss irideus*	FT	High
MSA Managed Fish	--	MSA Managed	Low
Invertebrates			
Monarch (Overwintering Population)	*Danaus plexippus plexippus*	FC	Low
Smith's Blue Butterfly	*Euphilotes enoptes smithi*	FE	High
Mammals			
Monterey Dusky-Footed Woodrat	*Neotoma macrotis luciana*	CSC	High
Monterey Shrew	*Sorex ornatus salarius*	CSC	Low

Pacific Harbor Seal	*Phoca vitulina*	MMPA	High
Reptiles			
Northern California Legless Lizard	*Anniella pulchra (formerly* ssp. nigra)	CSC	High
Western Pond Turtle	*Emys marmorata*	CSC	High

Amphibians

Two special-status amphibian species have the potential to occur within the project site: California red-legged frog (CRLF; Federally Threatened and California Species of Special Concern) and coast range newt (California Species of Special Concern). CRLF has been observed within the Carmel River Lagoon, with records occurring within the project site (CNDDB Occurrence No. 472). In addition to upland occurrences on the east side of the lagoon, there are multiple occurrence records of CRLF tadpoles and adults in the south arm of the Carmel River Lagoon, indicating this part of the lagoon is utilized for CRLF breeding habitat (HTH 2013). While coast range newt has not been observed within the project site (CNDDB Occurrence No. 70), the valley foothill riparian woodland provides suitable habitat for this species.

As part of site preparation activities, approximately 0.3 acre of potentially occupied valley foothill riparian woodland and perennial and seasonal wetland would be cleared. Construction access, staging, and ground disturbance would also occur in riparian vegetation and wetlands, resulting in temporary disturbance to potentially suitable habitat. Finally, pipeline removal activities in the Carmel River Lagoon could also result in temporary impacts to breeding habitat for CRLF. Potentially significant impacts could be incurred to special-status amphibians as a result of project implementation. These impacts would be reduced to **less than significant** with implementation of BMPs and AMMs listed in Table 2 in the Project Description, as well as Mitigation Measures BIO-1 and BIO-3, below.

Birds

The valley foothill riparian woodland and the tall, dense wetland vegetation on the project site provide suitable nesting habitat for a variety of special-status birds including passerines, raptors, and waterfowl protected under the MBTA and CDFG Code. The protected nature of the Carmel River Lagoon and the project site's location therein provides attractive nesting opportunities for special-status birds. White tailed kite (California Fully Protected) have been observed exhibiting nesting behavior within the project site.

As part of site preparation activities, approximately 0.6 acre of suitable nesting habitat within the onsite valley foothill riparian woodland, perennial wetland, and coastal scrub would be cleared or temporarily disturbed. Further, project related activities could produce in-air sound levels that could disturb nesting birds outside of the project site footprint. Accordingly, while it is unlikely that the proposed project would result in take of individual birds, active nests (i.e., nests with viable eggs and/or chicks) may be impacted by project-related activities that result in nest abandonment or destruction. Potentially significant impacts to nesting birds, protected pursuant to the MBTA and California Fish and Game Codes, could occur as a

result of project implementation. These impacts would be reduced to **less than significant** with implementation of AMMs (which include preconstruction nesting surveys required in the 2018 Biological Opinion) and Mitigation Measure BIO-1, below.

Fish

A single special-status fish species is known to occur within the Carmel River Lagoon and has the potential to occur within the project site: South-Central California Coast (SCCC) Distinct Population Segment (DPS) steelhead (Federally Threatened). The Carmel River and Carmel River Lagoon are designated as critical habitat for SCCC steelhead. In addition, portions of the Carmel River and the Carmel River Lagoon are classified as EFH for finfish, krill, coastal pelagic species, and groundfish; these species are managed under the Pacific Coast Groundfish FMP, the Coastal Pelagic Species FMP, and the Highly Migratory Species FMP. The upstream/landward extent of these mapped EFH units includes mean-higher-high-water level (MHHW) or the upriver extent of saltwater intrusion, which includes the in-water portion of the project site.

Steelhead are known to occur within the Carmel River Lagoon, and as the project site occurs within the upstream/landward extent of the mapped EFH units, presence of these fish cannot be ruled out. Potentially significant impacts could be incurred to special-status fish species as a result of project implementation. These impacts would be reduced to a level considered less than significant with implementation the AMMs and Mitigation Measure BIO-5, below.

Invertebrates

Two special-status invertebrates have the potential to occur within the project site: overwintering monarch butterflies and Smith's blue butterfly (Federally Endangered). These species are not known to occur on or adjacent to the project site, however multiple records for these species occur within 3 miles of the project site.

While suitable habitat for overwintering monarch butterflies occurs along the northeastern boundary of the project site (a row of eucalyptus trees acts as a windbreak immediately south of the CAWD wastewater treatment facility), these trees will not be impacted by the proposed project. Accordingly, impacts to overwintering monarch butterflies are not expected to occur as a result of project implementation.

The closest record of Smith's blue butterfly is for individuals observed approximately 1.3 miles east of the project site on preserved land within the Palo Corona Regional Park. The coastal scrub within and adjacent to the project site provides potentially suitable habitat for this species and its obligate host plants (dune buckwheat [*Eriogonum parvifolium*] and seaside buckwheat [*Eriogonum latifolium*]). Johnson Marigot Consulting, LLC biologists Ms. McGarvey and Ms. Bingham observed several dune buckwheat plants off the Carmel Meadows trail during their September 4, 2020 site visit, confirming presence of the host plant within the project site. As such, the presence of Smith's blue butterfly cannot be ruled out. Potentially significant impacts could be incurred to special-status invertebrates as a result of project implementation. These impacts would be reduced to **less than significant** with implementation of the BMPs and AMMs listed in Table 2 in the Project Description, as well as Mitigation Measures BIO-1 and BIO-4a and b, below.

Mammals - Terrestrial

Two special-status terrestrial mammal species have the potential to occur within the project site: Monterey dusky footed woodrat (woodrat) (California Species of Special Concern) and Monterey shrew (California Species of Special Concern). Several woodrat nests occur throughout the onsite valley foothill riparian woodland, however, there is a low potential for Monterey shrew to occur within the project site due to the onsite presence of marginal saltmarsh habitat in proximity to existing recorded occurrences (CNDDB Occurrence No. 5). This species has not been observed in the vicinity of the project site since the early 1900s.

Several Monterey dusky-footed woodrat nests have been observed on the project site; these woodrat nests occur within the footprint of the eastern work area and cannot be feasibly avoided. As such, implementation of the proposed project has the potential to result in adverse impacts to Monterey dusky-footed woodrat. Similarly, project related activities would result in temporary impacts to potentially suitable habitat for Monterey shrew. Potentially significant impacts could be incurred to special-status mammals as a result of project implementation. These impacts would be reduced to ***less than significant*** with implementation of BMPs and AMMs listed in Table 2 in the Project Description, as well as Mitigation Measures BIO-1 and BIO-6, below.

Mammals- Marine

A single marine mammal species has the potential to occur within the project site: Pacific harbor seal (MMPA Protected Species). This species has been observed within the open waters of the lagoon next to the above-water portion of the existing pipelines. No other marine mammals have been recorded within the project site boundaries.

Marine mammals such as the Pacific harbor seal rely on sound for foraging, navigating, and communicating, and are sensitive to noise-related effects generated by construction activities. Project-related activities would not result in elevated in-water and/or airborne sound levels that would cause disturbance to marine mammals resulting in incidental harassment and/or take. Turbidity curtains, to be used to isolate the in-water work area, generally do not affect marine mammal access or preclude their mobility. Therefore, protected marine mammals would not be significantly impacted as a result of project implementation, and the project's impact would be **less than significant**.

Reptiles

Two special-status reptile species have the potential to occur within the project site: Northern California legless lizard (California Species of Special Concern) and western pond turtle (California Species of Special Concern). Northern California legless lizard has been recorded as occurring within/adjacent to the western portion of the project site as recently as 1998 (CNDDB Occurrence No. 45). As part of site preparation activities, approximately 0.3 acre of coastal scrub habitat would be cleared, resulting in the temporary alteration of habitat potentially occupied by the Northern California legless lizard. Western pond turtle has been documented as occurring within the central portion of the project site (CNDDB Occurrence No. 1108). As part of site preparation activities, approximately 0.14 acre of perennial wetland habitat and navigable waters would be temporarily filled or impacted,

resulting in the temporary alteration of habitat potentially occupied by the Western pond turtle. Potentially significant impacts could be incurred to special-status reptiles as a result of project implementation. These impacts would be reduced to **less than significant** with implementation of BMPs and AMMs 16 and 17 listed in Table 2 in the Project Description, as well as Mitigation Measures BIO-1 and BIO-3, below.

b. Riparian or Other Special-Status Habitats - ***Less than Significant with Mitigation.***

Riparian Habitats

The proposed project would require work within the Carmel River Lagoon and associated riparian habitat and would accordingly result in impacts to waters/habitats regulated by CDFW. Riparian habitats are special-status habitats, protected by state and local governments including CDFW (pursuant to California Fish and Game Code 1602 [Lake and Streambed Alteration]) and Monterey County (pursuant to the Carmel Land Use Plan), As such, it is assumed that project authorization from CDFW pursuant to Section 1602 of the California Fish and Game Code would be required.

As part of project preparation activities, approximately 0.3 acre of valley foothill riparian woodland would be cleared of vegetation to accommodate HDD construction activities and associated equipment. This potentially significant impact would be reduced to a less-than-significant level by implementation of BMPs and AMMs listed in Table 2 in the Project Description, as well as mitigation measures BIO-1 and BIO-7, below.

Critical Habitat for Listed Species

The project site occurs within designated critical habitat for two federally listed species: CRLF and SCCC steelhead DPS.

CRLF was listed as federally threatened in 1996 (Federal Register 61:25813-25833), with critical habitat originally designated for this species in 2001 (Federal Register 66:14626-14674). This critical habitat ruling was contested (Home Builders Association of Northern California, et al. v. Norton, et al., Civ. No. 01-1291 (RJL) (D. D.C.)), withdrawn, reduced (Federal Register 71:19244-19346), and finally re-designated in 2010 (Federal Register 75:12816-12959). Impacts to CRLF critical habitat could occur associated with removal of potentially occupied valley foothill riparian woodland and temporary impacts to potentially occupied WOTUS. Although CRLF critical habitat could be temporarily impacted during construction, these impacts can be reduced to a less than significant level with implementation of AMMs, BMPs, and Regulatory Authorizations presented in Table 2 in the Project Description. The proposed project is expected to benefit critical habitat in the project site for CRLF in the long-term.

The project site occurs entirely within critical habitat unit MNT-2. The SCCC steelhead DPS was listed as federally threatened in 2006 (Federal Register 71:834-862), with critical habitat designated for the species in 2005 (Federal Register 70:69348-69350). The project site occurs entirely within the designated critical habitat within the Carmel River Hydrologic Unit 3307. Critical habitat within estuary habitat is defined by the perimeter of the water body or the elevation of extreme high water, whichever is greater. Impacts to SCCC steelhead critical

habitat could occur associated with temporary impacts to potentially occupied WOTUS. Although SCCC steelhead critical habitat could be temporarily impacted during construction, these impacts can be reduced to a less than significant level with implementation of AMMs, BMPs, and Regulatory Authorizations presented in Table 2 in the Project Description. The proposed project is expected to benefit critical habitat in the project site for SCCC steelhead in the long-term.

In 1996, Caltrans established the 43-acre Carmel River Mitigation Bank (mitigation bank) within what is now the Carmel River Lagoon for the purpose of planning and providing compensation for similar impacts and unavoidable losses from transportation impacts (i.e., advance compensation). Caltrans and State Parks conducted restoration and enhancement work to restore the lagoon through conversion of the agricultural lands back to wetlands and riparian forest. The project site is partially located within the mitigation bank. In accordance with the Mitigation Banking Instrument for the Carmel River Mitigation Bank, remediation required as a result of project-related adverse impacts to resources within the mitigation bank are the responsibility of the CAWD and would be enforced through regulatory permits and authorizations (Caltrans 1996). These impacts can be reduced to a ***less than significant*** level with implementation of AMMs and BMPs presented in the Project Description, and Mitigation Measure BIO-2b, below.

Essential Fish Habitat

The Magnuson-Stevens Fishery Conservation and Management Act (MSA) (50 CFR § 600.920(b)) requires all federal agencies to consult on activities or proposed activities that may adversely affect Essential Fish Habitat (EFH) of federally managed marine and anadromous fish species. EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (Magnuson-Stevens Act: 16 U.S.C. 1802 (10)).

Portions of the Carmel River and Carmel River Lagoon are classified as EFH for species managed under the Pacific Coast Groundfish FMP, the Coastal Pelagic Species FMP, and the Highly Migratory Species FMP. HAPCs are a subset of EFH and merit special attention from NOAA Fisheries. HAPCs are high priority areas for conservation and management because they are important to ecosystem function, sensitive to human activities, stressed by development, or rare (NOAA, 2020). The Pacific Coast Groundfish FMP designates HAPCs for groundfish along the west coast. The Coastal Pelagic Species FMP and the Highly Migratory Species FMP do not identify HAPCs for their covered species.

HAPCs for groundfish in the vicinity of the project site include the estuary both onsite and immediately north of the mouth of the Carmel River and the Monterey Canyon, which is a submarine canyon that originates at Moss Landing and extends to over 292 miles offshore. The Monterey Canyon HAPC is not located onsite, nor would it be impacted by the proposed project.

Project activities that may impact EFH and/or HAPC include the removal of the existing pipelines spanning the lagoon. In addition, the Monterey Peninsula Water Management District (MPWD) maintains a lagoon water level sensor which is currently mounted to the

CAWD aerial crossing structure. In order to maintain their level sensor, MPWMD will need to relocate their sensor before the existing pipelines are demolished.

The primary potential adverse effect to EFH and/or HAPC from removal of the existing pipelines is the suspension of sediments, which may result in turbidity. There is a potential to adversely affect EFH and/or HAPC during the removal of the pipelines, however, the long-term benefits to EFH and HAPC obtained by removing the pipelines and their support piles outweigh the temporary adverse effect of turbidity.

Although EFH could be temporarily impacted during construction, these impacts can be reduced to a level considered *less than significant* with implementation of the Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Table 2 in the Project Description, and Mitigation BIO-1 and BIO-5, below.

National Marine Sanctuary

The 6,094 square-mile Monterey Bay National Marine Sanctuary was designated on September 18, 1992 and expanded on March 9, 2009. This sanctuary extends from San Francisco to Cambria, California, and includes the Carmel Bay. The project site does not occur within the Monterey Bay National Marine Sanctuary. The proposed project is not expected to result in any impacts to the Monterey Bay National Marine Sanctuary.

c. Wetlands - ***Less than Significant Impact with Mitigation.*** Section 404 Clean Water Act (CWA): Section 404 of the Clean Water Act (CWA), administered by the Corps, establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Per Section 404, a permit is required prior to discharge of fill material into waters of the United States, unless the activity is exempt from Section 404 regulation.

Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands. Wetlands are “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” [33 C.F.R. 328.3(b), 51 F.R. 41250, November 13, 1986]. Wetlands can be perennial or intermittent, and isolated or adjacent to other waters.

Other waters are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses [33 C.F.R. 328.3(a), 51 F.R. 41250, November 13, 1986].

The implementation of the proposed project would result in temporary impacts to a total of approximately 0.26 acre of Waters of the US (WOTUS). Temporary impacts would result from temporary fill of 0.12 acre of seasonal and perennial wetlands, work within 0.08 acre of perennial wetland, and work in and over 0.06 acre of navigable waters. HDD methods necessitate boring below the Carmel River Lagoon, which could result in frac-out along the bore path. Adverse impacts to WOTUS would be considered a significant adverse impact. These potentially significant impacts would be reduced to less-than-significant levels by

implementation of Water Quality and Wetlands/Riparian protection BMPs, AMMs, and Regulatory Authorizations listed in Table 2 in the Project Description, and Mitigation Measure BIO-7, below.

d. Wildlife Movement Corridors – *Less than Significant Impact*. A wildlife corridor is an area of habitat adjoining two or more larger areas of similar wildlife habitat, often connecting wildlife populations separated by natural or created activities, disturbances, or structures. Wildlife corridors are used by individuals and populations for dispersal and migration, allowing for genetic exchange, population growth, and access to larger stretches of suitable habitats, and functionally reduce fragmentation.

The majority of the project site does not represent a regional or local migration corridor for any common or special-status wildlife species. However, the Carmel River Lagoon represents a significant part of the SCCC steelhead DPS Carmel River migration route, with smolt residing in the lagoon (specifically in the southern arm of the lagoon which is usually the deepest portion of the lagoon during the summer months) after their Carmel River downstream migration and prior to entering the ocean. The proposed project would include work within the open water and perennial wetland portions of the Carmel River Lagoon associated with removal of the existing pipelines, however, this work would not result in barriers to movement to or from the lagoon, the Carmel River, or the ocean during construction.

The Carmel River Lagoon is also considered a nursery for amphibians, birds, fish, invertebrates, and mammals. The project site provides suitable foraging, breeding, and nesting habitat for some of these species, however the proposed project would not impede wildlife access to this habitat or other areas necessary for their reproduction.

In-water work would be isolated from the surrounding waters via installation on a turbidity curtain, however, the turbidity curtains would only isolate one side of the shore at a time to allow aquatic species to continue to move from one end of the lagoon to the other.

Although work would occur within a wildlife corridor and nursery site, the proposed project would not interfere with the movement of native resident or migratory fish or wildlife species or with established wildlife corridors, or impede the use of a native wildlife nursery site. Therefore, this impact would be ***less than significant***.

e. Conformance with Local Policies/Ordinances - *Less than Significant Impact with Mitigation.* Federal, state and local natural resource ordinances and laws, as well as local land use plans, are applicable to the proposed project area, including the Coastal Zone; these ordinances, laws, and plans are discussed below.

Coastal Zone Management Act (CZMA) of 1972: The U.S. Congress addressed the regulation of development in the coastal zone by passing the CZMA in 1972. This act, administered by NOAA, provides for the management of the nation's coastal resources. The goal is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." The CZMA outlined the National Coastal Zone

Management Program, of which 34 states including California participate. Section 307 of the CZMA, called the "federal consistency" provision, gives states a role in the federal agency decision making process for activities that may affect a state's coastal uses or resources. The CZMA encourages states to develop coastal management programs and implement the federal consistency procedures of the CZMA. Upon certification of a state's coastal management program, all federal agency activities (including federal development projects, permits and licenses, and assistance to state and local governments) affecting the coastal zone must be consistent with the enforceable policies of the state's certified program.

California Coastal Act of 1976: The federal government certified the California Coastal Management Program in 1977. The enforceable policies of that document are Chapter 3 of the California Coastal Act of 1976; these policies address public access, recreation, the marine environment, land resources, development, and industrial development.

The Federal Consistency Unit of the California Coastal Commission (CCC) implements the CZMA and the Coastal Act. From the shoreline, the coastal zone extends seaward three miles and a variable distance landward, from several 100 feet to several miles inland. In the case of the Carmel Lagoon, the CCC has State Tidelands jurisdiction that extends over the entire lagoon.

The Coastal Act was designed to be carried out by local governments through the creation and implementation of Local Coastal Programs (LCPs). The preparation of an LCP (comprised of a Land Use Plan and an Implementation Plan and certified by the CCC) is required from all coastal counties and cities for the portion of their jurisdiction that falls within the coastal zone.

Monterey County General Plan: In October 2010, the Monterey County Planning Commission adopted the updated 2010 Monterey County General Plan (2010 General Plan). This 2010 General Plan includes policies that address the existing and future land use within the County. It is of note that the 2010 General Plan does not amend and is not intended to outrank the measures within the Carmel LUP (i.e., the County's coastal zone is managed by the Monterey County LCP, and the four approved LUPs therein). This approach to local land use policy recognizes that the coastal zone is a distinct and valuable natural resource which requires unique planning considerations and may require different standards and policies than may apply in the non-coastal areas of the County.

Carmel Area Land Use Plan: The project area falls within the jurisdiction of the *Carmel Area Land Use Plan Local Coastal Program* (Monterey County 1983). The Coastal Act established a framework for local governments to create LCPs that address the conservation and use of public access and coastal resources. LCPs must be consistent with the policies of Coastal Act.

The project site is located within both the Carmel Coastal Segment of the Monterey County LCP and the Coastal Commission's State Tidelands jurisdiction. The Carmel Coastal Segment extends from Pescadero Canyon in the north to Malpaso Creek in the south.

Project implementation would temporarily impact resources in the coastal zone that include, but are not limited to, waters, vegetation, and public access. Impacts would result from removal of riparian vegetation, construction access on public trails, and in-water work activities. Impacts to resources in the coastal zone can be reduced to a **less than significant** level with implementation of AMMs and Regulatory Authorizations listed in Table 2 in the Project Description.

Pursuant to the Coastal Act, development within the Carmel Coastal Segment must comply with the Carmel Area Land Use Plan and the Monterey County Coastal Implementation Plan. The Carmel Area Land Use Plan (LUP) and the Monterey County Coastal Implementation Plan policy measures and recommendations regard impacts to natural resources and are considered pertinent to the proposed project are discussed below. Policies regarding specific project requirements such as County implementation of the review process and specific action recommendations for local, state, or federal agencies are not addressed below. Similarly, policy measures and recommendations that are clearly referring to projects or activities that are not related to the proposed project (e.g., residential, commercial, and recreational development projects) are not addressed below.

Environmentally Sensitive Habitats

General Policy 1: General Policy 1 states that "Development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, shall be avoided in critical and sensitive habitat areas, riparian corridors, wetlands, sites of known rare and endangered species of plants and animals, rookeries and major roosting and haul-out sites, and other wildlife breeding or nursery areas identified as critical. Resource-dependent uses, including nature education and research, hunting, fishing, and aquaculture, shall be allowed within environmentally sensitive habitats only if such uses will not cause significant disruption of habitat values. Only small-scale development necessary to support the resource-dependent uses may be located in sensitive habitat areas if they cannot feasibly be located elsewhere."

The proposed project consists of preemptive work to underground the sewer and outfall pipes in order to prevent future damage by increased river flows in the south arm created by the CRFREE project. This work will require vegetation removal, excavation, and other temporary disturbances to riparian and wetland habitat, as well as the south arm of the Carmel River Lagoon. This development within the environmentally sensitive habitats within the project site cannot be feasibly located elsewhere as the work is location-dependent. As such, the development avoidance recommendation presented within this general policy measure does not apply to the proposed project.

General Policy 2: General Policy 2 states that "Land uses adjacent to locations of environmentally sensitive habitats shall be compatible with the long-term maintenance of the resource. New land uses shall be considered compatible only where they incorporate all site planning and design features needed to prevent habitat impacts

and where they do not establish a precedent for continued land development which, on a cumulative basis, could degrade the resource."

The proposed project consists of preemptive work to underground the sewer and outfall pipes in order to prevent future impediments to flow within the Carmel River Lagoon as well as potential damage to pipes by floating debris within the lagoon. This project would result in temporary impacts to environmentally sensitive habitats in order to maintain and improve the sustainability of the pipeline within the Carmel River Lagoon area, which is compatible with and beneficial to long-term maintenance of the Carmel River Lagoon habitat.

General Policy 5: General Policy 5 states that "Where private or public development is proposed in documented or expected locations of environmentally sensitive habitats - particularly those habitats identified in General Policy No. I - field surveys by qualified individuals or agency shall be required in order to determine precise locations of the habitat and to recommend mitigating measures to ensure its protection. This policy applies to the entire segment except the internal portions of Carmel Woods, Hatton Fields, Carmel Point (Night heron site excluded), Odello, Carmel Meadows, and Carmel Riviera. If any habitats are found on the site or within 100 feet from the site, the required survey shall document how the proposed development complies with all the applicable habitat policies."

As detailed above, field surveys were conducted on the project site to document natural resources present on and adjacent to the project site. Mitigation measures are presented below that would ensure the protection of sensitive natural resources found on the project site. In addition, a certified arborist, approved by the County of Monterey, will conduct a tree survey and prepare their findings in a tree survey report to document impacts to trees associated with project implementation. This tree report will be provided to the County upon completion.

General Policy 6: General Policy 6 states that "The County shall require deed restrictions or dedications of permanent conservation easements in environmentally sensitive habitat areas where development is proposed on parcels containing such habitats. Where development has already occurred in areas supporting sensitive habitat, property owners should be encouraged to voluntarily establish conservation easements or deed restrictions."

The establishment of conservation easements or deed restrictions within the project site is not necessary as the project site occurs within land owned and managed by State Parks. The proposed project would result in temporary impacts within this protected land.

Riparian Corridors and Other Terrestrial Wildlife Habitats Policy 1: Riparian Corridors and Other Terrestrial Wildlife Habitats Policy 1 states that "Riparian plant communities shall be protected by establishing setbacks consisting of a 150-foot open space buffer zone on each side of the bank of perennial streams and 50 feet on each

side of the bank of intermittent streams, or the extent of riparian vegetation, whichever is greater. No new development, including structural flood control projects, shall be allowed within the riparian corridor. However, improvements to existing dikes and levees shall be allowed if riparian vegetation damage can be minimized and at least an equivalent amount and quality of replacement vegetation is planted. In addition, exceptions may be made for carefully sited recreational trails. The setback requirement may be modified if it can be demonstrated that a narrower corridor is sufficient to protect existing riparian vegetation. Riparian vegetation is an association of plant species which typically grows adjacent to freshwater courses and needs or tolerates a higher level of soil moisture than dryer upland vegetation."

Due to the location of the proposed project, impacts to riparian habitat would be necessary in order to establish a staging area for construction equipment and temporary spoils piles necessary for project implementation. Upon completion of the project, riparian vegetation would be replanted as required by state and local permits to be issued for the project.

Riparian Corridors and Other Terrestrial Wildlife Habitats Policy 4: Riparian Corridors and Other Terrestrial Wildlife Habitats Policy 4 states that "To protect important wildlife habitat, all off-road recreational vehicle activity should be discouraged within riparian corridors and public access should be limited to designated areas. Accordingly, roads and trails should be sited to avoid impacts to riparian habitat."

CAWD's existing maintenance road / pipeline easement on the east side of the lagoon passes through a riparian corridor. Riparian vegetation along this road would be trimmed to establish construction access and would be used for construction crews and equipment to access work areas. However, this maintenance road would not constitute a road or trail open for public use. As such, the avoidance recommendation presented within this general policy measure does not apply to the proposed project.

Wetlands and Marine Habitats Policy 1: Wetlands and Marine Habitats Policy 1 states that "A setback of 100 feet from the edge of all coastal wetlands shall be provided and maintained in open space use. No new development shall be allowed in this setback area."

Unavoidable temporary impacts would be incurred to portions of wetlands as a part of project-related activities. Wetlands would be protected with construction mats, and restored to preexisting condition post-construction. Restoration plantings and monitoring will be conducted within these temporarily disturbed wetlands as required by local, state, and federal project authorizations. All wetlands adjacent to project work that are not scheduled for disturbance would be protected from incidental disturbances via intervening barriers to placement of fill such as silt fencing or flagging. Setbacks around wetlands are not appropriate for the proposed project, and new development is not proposed.

Water and Marine Resources

Water Availability Policy 5: Water Availability Policy 5 states that "Any diversion of surface sources of water shall be required to submit an approved water appropriation permit from the SWRCB prior to approval of any coastal development permit except where such water appropriation permit is not required by applicable State law."

Project implementation would not require the diversion of surface sources of water. However, project authorizations would be obtained from the RWQCB and USACE prior to commencement of project-related activities that would temporarily impact Waters of the US.

Water Pollution Control Policy 1: Water Pollution Control Policy 1 states that "All dumping of spoils (dirt, garbage, refuse, etc.) into riparian corridors and other drainage courses should be prohibited."

Project implementation would require that drilling fluid and HDD spoils would be stored in fixed-angle storage tanks within the HDD work areas. Used drilling fluid would be transported offsite to an appropriate upland sanitary land fill. The wetland and riparian habitats to be temporarily impacted by the proposed project would be revegetated with wetland and riparian species and monitored, as required by local, state, and federal project authorizations. Revegetation work would be consistent with a Revegetation Plan to be submitted to and approved by appropriate agencies prior to commencement of project activities.

Monterey County Tree Ordinance

Pursuant to the Monterey County Oak Protection Ordinance, the removal of trees that have been designated as "protected" requires a permission from the County Planning Department. With regard to the proposed project, protected trees include oak trees that are six inches or more in diameter at two feet above ground level. While a complete tree survey has not been conducted on the project site to date, and as such, impacts to protected trees have not been calculated, there is potential for unavoidable impacts to protected trees associated with implementation of the proposed project. *These impacts can be reduced to a level considered less than significant* with implementation of Regulatory Authorizations and AMMs presented in Table 2 in the Project Description, and Mitigation Measure BIO-2b, below.

Carmel River Mitigation Bank

In 1996, Caltrans established the 43-acre Carmel River Mitigation Bank (mitigation bank) within what is now the Carmel River Lagoon for the purpose of planning and providing compensation for similar impacts and unavoidable losses from transportation impacts (i.e., advance compensation). Caltrans and State Parks conducted restoration and enhancement work to restore the lagoon through conversion of the agricultural lands back to wetlands and riparian forest. The project site is partially located within the mitigation bank. In accordance with the Mitigation Banking Instrument for the Carmel River Mitigation Bank, remediation required as a result of project-related adverse impacts to resources

within the mitigation bank are the responsibility of the CAWD and would be enforced through regulatory permits and authorizations (Caltrans 1996). These impacts can be reduced to a level considered *less than significant* with implementation of AMMs presented in Table 2 of the Project Description, and Mitigation Measure BIO-2b, below.

f. Habitat Conservation Plan/Natural Communities Conservation Plan – ***No Impact***

No habitat conservation plans or natural community conservation plans apply to the project site. There would be **no impact** on such plans.

Mitigation Measures

Mitigation Measure BIO-1: Environmental Monitoring and Control Plans

The outlined natural environment monitoring plans and control measures shall be incorporated into the proposed project's contract documents to ensure protection of the environment. Control measures are procedures known to reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction/operating experiences of the contractor and the design engineer. A habitat restoration plan would be implemented in coordination with the USFWS, Army Corps of Engineers, and California State Parks Department as described in AMM-4. In addition, a frac-out plan shall be prepared, as described below.

Frac-Out Plan. A frac-out contingency plan shall be prepared and submitted to relevant natural resource agencies prior to project initiation. This plan shall be developed in coordination with the relevant natural resource agencies, and shall include, but not be limited to the following:

a. measures employed to prevent frac-out;
b. measures to be employed in case of frac-out; and
c. a plan for drilling fluid management.

Mitigation Measure BIO-2: Special-Status Plants

Mitigation Measure BIO-2a

In the Spring and Summer immediately prior to project implementation, protocol-level rare plant surveys shall be conducted on the project site. Rare plant surveys shall be conducted by a qualified botanist, in accordance with all applicable survey guidelines including those published by USFWS (USFWS 1996), CDFW (CDFW 2000, 2009) and CNPS (CNPS 2001). If determined to be necessary, reference site surveys shall be conducted to confirm plant phenology (flowering periods). If any of these species are observed, the area would be appropriately marked, with bright flagging, and the area would be avoided during construction.

Mitigation Measure BIO-2b

A County-approved arborist shall conduct a tree survey of the eastern HDD work area to document all existing trees and to determine impacts to trees that are protected by the

County's tree ordinance as well as those that are protected due to their location within the riparian canopy (CDFW jurisdiction). Information regarding protected oak trees shall be compiled in a tree survey report and submitted to the County. Information regarding riparian canopy impacts shall be provided to CDFW. It is likely that tree replacement will be required to mitigate impacts from the removal of protected trees; this replacement ratio shall be determined in coordination with the County and CDFW. Revegetation work would be consistent with a Revegetation Plan to be submitted to and approved by appropriate agencies prior to commencement of project activities. In addition, all trees not scheduled for removal or trimming shall be protected from damage by the installation of exclusion fencing around the trees' dripline.

Mitigation Measure BIO-3: Protected Amphibians and Reptiles

An approved biologist shall conduct a preconstruction survey of the project site no more than 48 hours before the onset of work activities. If the approved biologist finds any life stage of special-status amphibian or reptile species, and these individuals are likely to be killed or injured by work activities, the approved biologist shall move them from the site before work begins. The approved biologist shall relocate the individuals the shortest distance possible to a location that contains suitable habitat and that will not be affected by activities associated with the proposed project. The relocation site shall be in the same drainage to the extent practicable.

***Mitigation Measure BIO-4*: Protected Invertebrates**

Mitigation Measure BIO-4a

During protocol-level rare plant surveys conducted on the project site, a qualified botanist shall also search for Smith's blue butterfly host plant species. If Smith's blue butterfly host plants are observed on the project site, temporary protective fencing or flagging would be installed around any Smith's blue butterfly host plants if found within vegetation clearing areas. To the extent practical, fencing would be installed to create a buffer of 20 feet around each plant. The approved biologist would monitor installation of protective fencing/flagging prior to clearing of vegetation.

Mitigation Measure BIO-4b

If construction activities are scheduled to occur during the June 15 to September 15 flight season, the approved biologist shall conduct SBB surveys at the beginning and end of flight season. Additionally, an approved biologist shall survey for SBB during preconstruction surveys, monitor for SBB during all activities that occur within 300-feet of a SBB host plant during the flight season, and stop any work that may result in take of SBB.

Mitigation Measure BIO-5: Protected Fish

A turbidity curtain shall be installed surrounding the active in-water work area in order to isolate the in-water work area from the surrounding navigable waters and protect fish habitat from potential water quality impacts. Turbidity curtains shall only traverse one side of the shore at a time to allow aquatic species to continue to move from one end of the lagoon to the other.

Mitigation Measure BIO-6: Protected Terrestrial Mammals
Within 14 days prior to project-related activities that could impact Monterey dusky-footed woodrat, an approved biologist shall conduct a preconstruction survey to locate and map the locations of all currently existing Monterey dusky-footed woodrat nests on the project site as well as any evidence of Monterey dusky-footed woodrat activity (i.e., feces, urine stations, fresh sticks added to nest structures, used entryways under nest structures).

All Monterey dusky-footed woodrat individuals shall be protected from direct impacts associated with project-related activities through the installation of wildlife exclusion fencing around the perimeter of the work areas. All Monterey dusky-footed woodrat nests that are 10 feet or more outside of the work area boundaries shall be preserved and protected in place. All of the Monterey dusky-footed woodrat nests within the project site and within 10 feet of the work areas cannot be avoided by project-related activities and/or could incur indirect impacts due to proximity of project-related activities, and as such, they shall require relocation according to standard woodrat nest relocation procedures, in consultation with CDFW.

Mitigation Measure BIO-7: Wetlands and Waters of the US
All impacts to waters of the U.S. shall be temporary and result in no net loss. In locations where wetlands would be temporarily impacted to facilitate construction access, appropriate BMPs (e.g., open-celled, interlocking construction mats) shall be placed over the wetland. Following construction activities, all temporary fill shall be removed. All temporarily impacted wetlands shall be replanted, if necessary, with appropriate native vegetation.

V. Cultural Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historic resource as defined in Section 15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

Background:

A cultural resources study was prepared for the project by Pacific Legacy (December 2020 – on file at CAWD offices for review by authorized persons). The Pacific Legacy study incorporated the findings of their 2017 survey of the project area, and expanded that survey to focus on locations not surveyed in 2017. The study included archival and records search was conducted within a 0.25-mile buffer area around the Project area by staff at the Northwest Information Center (NWIC) of the California Historical Resources Information System (CHRIS) at Sonoma State University and site inspections. The literature search included a review of:

- The Historic Properties Directory (California Office of Historic Preservation 2015);
- The California Inventory of Historic Resources (State of California 1976);
- California Historical Landmarks (California Office of Historic Preservation 1996);
- California Points of Historical Interest listing May 1992 (State of California 1992); and
- The National Register of Historic Places (Directory of Determinations of Eligibility, California Office of Historic Preservation, Volumes I and II, 1990; Office of Historic Preservation Computer Listing 1990 and updates).

The archival and records search revealed that 12 prior cultural resources studies encompassed portions of the Project area, while a further 52 studies had been conducted outside of the Project area but within the 0.25-mile buffer. Of the 12 prior studies that covered a portion of the Project area, seven involved reconnaissance, one involved a cultural inventory, three involved archaeological monitoring, and one involved excavation. A single archaeological resource, CAMNT-14/P-27-000150, was identified within the Project area. Five additional resources were located within the 0.25-mile buffer area, including two shell

middens (CA-MNT-473/P-27-000562 and CA-MNT-633/P-27-000714) and three historic resources (CA-MNT-18H/P-27-000154, P-27-002116, and CA-MNT-2087H/P-27-002482). The west side of the project lies within the Ohlone Cultural Preserve. The preserve, within Carmel River State Beach was established in 1987 with the intent of preserving Native American resources within the park.

Review of the archival and records review conducted in 2017 identified three previously identified resources are located within or adjacent to the Project area. CA-MNT-14/P-27-000150 is located within the Project area. The site was subject to subsurface excavation by Garlinghouse et al. (2009) and recommended eligible for the California Register of Historical Resources (CRHR). The excavations took place in the northern portion of the site near the mouth of the Carmel River. A granite outcrop containing 20+ bedrock mortars is present at the site. Site constituents include marine and freshwater shell, fish, and mammal faunal bone, groundstone implements (handstones and hammerstones), and fire-affected rock. Other lithic material recovered during the 2009 excavations includes flaked stone tools, Monterey and Franciscan chert flaking debris, and obsidian debitage from Northern California and Central Sierra sources. Based on obsidian hydration rim readings and one radiocarbon date, the resource was thought to have been occupied during the Early Period (5500 – 2600 B.P.) with intermittent occupation in later periods.

Two other shell middens exist adjacent to the newly defined Project area, CA-MNT-473/P-27-000562 and CA-MNT-633/P-27-000714. CA-MNT-633 overlaps portions of CA-MNT-14 and is likely an extension of CA-MNT-14 rather than being a separate site.

Due to the inundation of Carmel River Lagoon, the presence or absence of cultural resources within the proposed pipeline excavation area was unable to be determined for certainty during the 2018 survey (Peske 2018). At that time, the survey area did not extend onto the top of the hill on the western side of Carmel River Lagoon extending to the beach. Two auger bores excavated by Pacific Legacy failed to identify a subsurface component of the resource in accessible portions of the Project area which, at the time, (Peske 2018) was located at the eastern base of the hill on the western side of the lagoon (see Appendix B for details).

Another study was completed by Pacific Legacy in 2020 (Peske 2020) which included the monitoring of two geotechnical bores. On October 26 and 27, 2020, Pacific Legacy observed the excavation of two geotechnical bores, one on the west side of the lagoon and one on the east side of the lagoon. Lydia Bojorquez of the Kakoon-Ta-Ruk Band of Ohlone-Costanoan Indians served as Native monitor and was present during both bore excavations. Michael Bojorquez was present as a volunteer to assist Mrs. Bojorquez. Soils excavated from the bores were set aside and examined for cultural material. Observations of geotechnical bore 1 on the western side of Carmel River Lagoon indicated approximately 1.5 m of cultural deposit associated with CA-MNT-14, the prehistoric site. No cultural deposit was observed at the location of geotechnical bore 2 on the east side of the lagoon (Peske 2020).

A pedestrian survey of the Project area was conducted on November 17, 2020. The purpose of the survey was to identify the surface presence of cultural resources and to document the extents of midden soils within the Project area. A single cultural resource, P-27-000150, was located during the pedestrian survey. The extents of the site were found to match the previously plotted area of the site within the Project area. The site area was determined by the presence of dark midden soils. The midden within the site area is a 7.5 yr 2.5/1 black sandy loam. It is present on the surface in all areas within the site boundary with the exception of several cleared pedestrian trails. As the midden is present on both sides of the trails in all areas within the site boundary, it is likely that midden soils once existed within the trail alignments as well. Fire-affected rock and shell material were found in abundance throughout the site area as well. A single chert battered cobble was identified within the site area. The cobble bears flake scarring that suggests it was tested for producing lithic material. As the boundaries P-27-000150 and P-27-000714 overlap and there is no evidence of a break in surface midden soils between the two sites, it appears that the two sites should be merged. No evidence of P-27-000562 was found within the Project area.

An eroding bluff marks the western edge of P-27-000150. The survey crew inspected this bluff to accommodate for the low ground visibility within the site boundary aid in determining the extents of P-27-000150. A clear profile of the midden within the site was visible. The midden soil extended from the surface to 1 – 1.5 meters in depth along the edge of the site boundary. Midden was observed along the entire western edge of the mapped extents of both P-27-000150 and P-27-000714. It continued to be present south of the P-27-000714 western boundary, extending 75 feet to the south from P-27-000714 to a granitic outcrop. This portion of P-27-000714 lies outside of the project area and the extension was noted but not recorded. It ceased to be present just before the point where the Project area meets the beach.

CAWD has consulted with State Parks since 2018 regarding the identification and treatment of cultural resources within the Project Area at Carmel River State Beach. One resource, P-27-000150 lies within the APE. Initial consultation began with a review of the Draft Initial Study and Mitigated Negative Declaration in February of 2018. The 2018 survey report was reviewed and accepted by State Parks archaeologist Rae Schwaderer in March of 2018. Further consultation was conducted in August of 2020 to determine the level of effort needed for the geotechnical bores. It was agreed that the work would be monitored by State Parks and Native American representatives in addition to CAWD's consulting archaeologist. The geotechnical work was completed under permit number 20-37 issued by State Parks on September 4, 2020. The survey work completed for this report was completed under permit number 20-53 issue on November 11, 2020.

Additional discussions regarding the treatment of P-27-000150 were completed on December 18, 2020. The portion of the site within the APE had not been evaluated for eligibility for the National Register of Historic Places (NHRP). It was determined at the December 18 meeting that for purposes of this undertaking, that the portion of P-27-000150 which lies within the APE would be assumed eligible for the NRHP. The object of the meeting was to minimize ground disturbing activities to the resource which also included archaeological testing and/or data recovery in addition to construction impacts. It was agreed

that CAWD would implement steps to protect the site and reduce impacts of ground disturbing activities. Such steps could include laying down protective covering over site deposits where non-ground-disturbing activities would take place and limiting laydown areas and access roads to existing trails and roadways, construction crew training, fencing, or other protective measures as needed. It was also agreed that all ground disturbance would be monitored by qualified personnel and a Native American representative. Further, CAWD would apply agreed upon mitigation measures to support a finding of no significant impact with mitigation. Due to the limited excavation proposed, it was determined that preparation of an Inadvertent Discovery and Monitoring Plan for P-27-000150 was appropriate. The plan would be reviewed by State Parks prior to implementation and construction.

Discussion:

a. Historic Period Resources – *No Impact*. The only historic resources within 0.25 miles of the Project area are mission period associated structures and sites, including Mission San Carlos (P-27-000154), the Mission Orchard House (P-27-002116), and the Mission Ranch (P-27-002087H). The project is not on or adjacent to these sites, and does not propose any construction activities that have the potential to affect any of these resources. Therefore, it would have ***no impact*** to historic-era resources.

b, d. Archaeological Resources and Human Remains – *Less than Significant with Mitigation*. The project would involve ground-disturbing activities within a prehistoric site P-27-000150. In addition, ground disturbing activities may reveal subsurface deposits not readily visible during our field inspection. Therefore, it could have potentially significant impacts on recorded or previously undiscovered resources, including human remains. Mitigation Measures CULT 1, 2, and 3, below, would reduce this impact to a **less-than-significant** level.

c. Paleontological Resources - *Less than Significant*. Due to the location of the project in an active river channel, the likelihood of encountering paleontological resources is low. Therefore, this impact is considered **less than significant**.

Mitigation Measures

Mitigation CULT-1 – Preparation and Implementation of an Inadvertent Discovery and Monitoring Plan. CAWD in consultation with State Parks has determined that monitoring with agreed upon site protection measures during construction would be an appropriate mitigation measure to reduce the effect to P-47-000150 to less-than-significant. As part of the mitigation, CAWD has agreed to prepare an Inadvertent Discovery and Monitoring Plan which will outline the procedures, responsibilities, and thresholds for the need for further study. The plan will be subject to State Parks review and approval. If during construction, finds determined to be significant by the qualified cultural resource specialist the cultural resource specialist in consultation with Native American representatives will implement appropriate procedures such that the integrity of the find is protected and ensure that no additional features of the resource which make in eligible for the CRHR are affected. The

approved inadvertent discovery and monitoring plan shall be implemented at the instruction of State Parks. Methods and procedures may include the following:

- Using existing paths/travel which have existing decomposed granite overlaying midden deposits to minimize surface disturbance.
- Place filter fabric or construction matting down in laydown and work areas.
- Confine mobilization areas to existing roadway and decomposed granite except for boring equipment (HDD work area).
- Hand cut brush for access to work areas.
- Place signage for fencing adjacent to work areas designating Environmentally Sensitive Areas (ESA) where construction equipment and personnel cannot go into (e.g., signage or fencing adjacent to trails, roadways within site boundaries).
- Construction crew training.
- Protection measures included in contract specifications.
- Monitoring during all ground disturbing activities by a qualified archaeologist and Native American representative within the boundaries of P-47-000150.
- Periodic monitoring by a qualified archaeologist and Native American representative during construction on the west terrace to ensure that no inadvertent damage to site deposits occurs during construction activities.

Mitigation Measure CULT-2 – Previously Undocumented Archaeological Resources. During construction activities, there is the potential for discovery of previously undocumented archaeological resources. This is mainly applicable to the east side of the lagoon. Prior to initiating ground disturbing activities associated with the Project area, construction personnel should be alerted to the possibility of encountering buried prehistoric or historic period cultural material. A qualified archaeologist shall conduct cultural sensitivity training prior to the start of construction activities. Personnel should be advised that, upon discovery of buried archaeological deposits, work in the immediate vicinity of the find should cease and a qualified archaeologist should be contacted immediately if one is not already present.

In the event any cultural deposits are located, the State Park archaeologist shall be contacted immediately (for the staging area clearing and dredging/excavation). In addition, the final disposition of archaeological, historical, and paleontological resources recovered on State lands under the jurisdiction of the California State Lands Commission shall be subject to Commission approval.

If a find is identified, plans for the treatment, evaluation, and mitigation of impacts to the find shall be developed if it is found to be California Register of Historical Resources eligible. Potential cultural materials include prehistoric and historic period artifacts and remains. These may consist of, but are not limited to:

- Historic period artifacts, such as glass bottles and fragments, tin cans, nails, ceramic and pottery sherds, and other metal objects;
- Historic period features such as privies, wells, cellars, foundations or other structural

remains (bricks, concrete, or other building materials);
- Flaked-stone artifacts and debitage, consisting of obsidian, basalt, and/or chert;
- Groundstone artifacts, such as mortars, pestles, and grinding slabs;
- Dark, almost black, soil with a “greasy” texture that may be associated with charcoal, ash, bone, shell, flaked stone, groundstone, and fire-affected rock; and,
- Human remains.

Mitigation Measure CULT-3 – Human Remains. If human remains are encountered during construction, work in that area shall cease and the Monterey County Coroner must be notified immediately. If the remains are determined to be Native American, the NAHC shall be notified within 48 hours as required by Public Resources Code 5097. The NAHC shall notify the designated Most Likely Descendant, who shall in turn provide recommendations for the treatment of the remains within 24 hours after notification.

VI. Energy

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

Background:

Senate Bill (SB) 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the State's economy; and protect public health and safety. The *2019 Integrated Energy Policy Report* is the most recent update. The State's energy system includes energy extraction, transport, conversion (such as combusting natural gas in power plants to generate electricity or producing gasoline and diesel from crude oil in refineries), and consumption for services (such as electricity for lighting, natural gas use in homes and buildings for space and water heating, pumping water to communities and crops, and gasoline and diesel to fuel cars and trucks), as well as electricity from out-of-State plants serving California. In 2018, the State consumed approximately 15.5 billion gallons of ethanol and gasoline and approximately 3.7 billion gallons of diesel.[14]

Discussion:

a. Wasteful, inefficient, or unnecessary consumption of energy resources - *Less than Significant Impact*. Construction of the project would require consumption of gasoline and diesel fuel by construction worker vehicles and haul trucks travelling to and from the site, and by onsite construction equipment. Once construction is completed, the project would not increase energy consumption during operations because it is replacing existing pipelines used by the CAWD to convey raw sewage and treated wastewater.

Based upon the air quality and greenhouse gas emissions modeling described in detail in

[14] California Energy Commission, 2019 Integrated Energy Policy Report, February 20, 2020. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report

the Air Quality section of this Initial Study, project construction activities would require approximately 14,500 gallons of gasoline and 37,500 gallons of diesel fuel.[15] The project's gasoline consumption would represent approximately 0.00008 percent of what was consumed in the State in 2018. The project's diesel fuel consumption would represent 0.0009 percent of what was consumed in the State in 2018.

During construction of the project, the contractor would limit idling time of equipment and vehicles to 5 minutes or less and maintain construction equipment and vehicles in optimal working condition (see BMPs 1 and 2 on Table 1 in the Project Description). These BMPs would prevent wasteful or inefficient consumption of fuel during project construction.

The project would not be considered wasteful, as it is necessary to replace the CAWD's existing pipeline infrastructure. Therefore, the project would have a **less-than-significant impact**.

b. Conflict with or obstruct a plan for renewable energy or energy efficiency - *Less than Significant Impact.* Because the CEC's 2019 Integrated Energy Policy Report is intended to reduce GHG emissions by transitioning the State's energy portfolio to more renewable energy sources, it can also be viewed as a plan for renewable energy and energy efficiency on the Statewide level. As discussed in a) above, the project's energy consumption would be negligible in comparison to what is consumed annually in the State and it would not be wasteful, inefficient or unnecessary. The project would only consume energy resources temporarily over the eight months of construction and would not increase energy consumptions during operations. The project would not conflict with a State plan for energy efficiency. Therefore, the project would have a **less-than-significant impact**.

[15]Fuel usage is estimated using the Sacramento Metropolitan Air Quality Management District's (SMAQMD) Road Construction Emissions Model (Version 9.0.0) output for CO_2, and a $kgCO_2$/gallon conversion factor, as cited in the U.S. Energy Information Administration, *Carbon Dioxide Emissions Coefficients,* https://www.eia.gov/environment/emissions/co2_vol_mass.php

VII. Geology and Soils

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? (Refer to Division of Mines and Geology Special Publication 42.)			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			**X**	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
c) Be located in a geological unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				**X**

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
f) Directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature?			**X**	

Background:

Geology

The project area in the Carmel Lagoon and east of the lagoon is comprised of younger floodplain deposits laid down by the Carmel River, comprised of fine silt and sand with occasional discontinuous clay layers. These deposits are typically less than 20 feet thick and are underlain by older floodplain deposits. The hill on the west side of the lagoon (including pumping plant area) is underlain by granodiorite (granitic rock).

Seismicity

The greater San Francisco/Monterey Bay Area is seismically dominated by the active San Andreas Fault system, the tectonic boundary between the northward moving Pacific Plate (west of the fault) and the North American Plate (east of the fault).

The proposed project vicinity is transected by the Cypress Point Fault, which is not considered active. The proposed project site is not located within an Alquist-Priolo Earthquake Fault Zone and no mapped active faults are known to cross the proposed project site. The nearest fault is the Monterey Bay/Tularcitos Fault approximately 4.6 miles to the northeast. The probability of ground surface rupture at the proposed project site due to displacement is considered low. However, the proposed project site is located in a region of high seismicity. It is anticipated that during the useful life of the proposed project, the proposed project area will be subject to strong ground shaking. It is also anticipated that the area will periodically experience small to moderate magnitude earthquakes[16].

Discussion:

a. i, ii, iii Fault Rupture, Ground Shaking, Ground Failure - *Less than Significant Impact*. No fault rupture is likely at the site. The project area is subject to high ground shaking in the event of a major earthquake on nearby faults. The young alluvium has a "high" liquefaction susceptibility, while the older alluvium has a "moderate" liquefaction susceptibility. Bedrock and upland areas are mapped has having a "low" liquefaction susceptibility. There are no known historic liquefaction sites from the 1906 and 1989 earthquakes. The proposed project lies within moderate to high liquefaction susceptibility

[16] Denise Duffy & Associates, Inc., Carmel Lagoon EPB, SRPS, and ISMP Project Public Draft Environmental Impact Report, December 2016.

zones[17]. Lateral spreading is horizontal movement of soil toward a free face, such as a creek bank, typically associated with liquefaction. Lateral spreading generally occurs in shallow groundwater areas with unsupported embankments including natural creek banks, fill slopes, and levees, and is possible at the edge of the lagoon. The portion of the pipeline in the deep bore would not be subject to these hazards. The portion of the pipeline near the surface on the east side of the lagoon may be subject to ground failure hazards, however any damage to the proposed pipeline due to seismic shaking and localized liquefaction would be temporary and would be repaired as needed. Therefore this impact would be **less than significant**.

a. iv. Landslides – ***No Impact.*** Most of the proposed pipeline would be bored at depth under the nearly level topography of the lagoon bottom. No landslides are possible in this area. The portion of the pipeline climbing up the west bank to the pumping station would be on bedrock, which also is not subject to landslide hazards. The landslide potential on the project site is considered to be low, as indicated by Monterey County's Landslide Hazard Map. Therefore **no impact** would occur.

b. Soil Erosion - ***Less than Significant Impact.*** Soil erosion hazards could occur during construction, especially during subsurface trenching and prior to revegetation of the access road and staging areas. Soil exposed by roadway and staging area clearing and leveling activities, and soils stockpiles associated with the bore pits and boring activities, could be subject to erosion if exposed to heavy rains. The project applicant would create and implement an erosion control plan prior to the start of grading activities, as described in BMP-3 in the Project Description. Soil erosion and/or loss of topsoil during construction and grading activities would be reduced to a **less-than-significant** level with implementation of this BMP.

c. Unstable Soil - ***Less than Significant Impact.*** See discussion of potential soil instability associated with seismic shaking in response to Item a, above. The pipeline would not result in, or be subject to, non-seismically induced differential settlement or other soil instabilities. Therefore, this impact would be **less than significant**.

d. Expansive Soil - ***Less than Significant Impact.*** Site soils would be used as trench backfill. Because the project trench would be in alluvium under the lagoon, soils would be continually wetted and expansion/contraction cycles would not be likely to occur. Any unsuitable soils would be stabilized or replaced by suitable imported fills. Therefore, this impact would be **less than significant.**

e. Inadequate Soils for Septic Systems - ***No Impact****.* The project would not include the installation of septic tanks or alternative wastewater disposal systems and would therefore have **no impact** on soils related to septic tanks or alternative wastewater disposal systems.

f. Paleontological Resources – ***Less than Significant Impact.*** The Carmelo and Temblor Formations adjacent to Carmel River State Beach contain plant and animal fossils, largely

[17] Ibid

consisting of leaf fragments, pieces of carbonized wood, and seaweed. However, no fossils have been found in the three outcrops around Carmel Bay[18]. The eastern end of the project area is a recent river floodplain and is unlikely to contain fossil deposits. Therefore the project would have a less-than-significant impact to paleontological resources.

[18] AECOM, Existing Conditions and Resources Inventory Report, Carmel River State Beach, November 2013

VIII. Greenhouse Gas Emissions

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			**X**	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			**X**	

Background:

Gases that trap heat in the atmosphere are referred to as greenhouse gases (GHGs) because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as the driving force for global climate change. The primary GHGs are carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O), ozone, and water vapor.

While the presence of the primary GHGs in the atmosphere are naturally occurring, CO2, CH4, and N2O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO2 are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in units of "carbon dioxide-equivalents" (CO2e).[19]

In response to an increase in man-made GHG concentrations over the past 150 years, California implemented Assembly Bill (AB) 32, the "California Global Warming Solutions Act of 2006." AB 32 codifies the statewide goal of reducing emissions to 1990 levels by 2020 and the adoption of regulations to require reporting and verification of statewide GHG emissions. Furthermore, on September 8, 2016, the governor signed SB 32 into law, which requires the State to further reduce GHGs to 40 percent below 1990 levels by 2030. SB 32 extends AB 32, directing the CARB to ensure that GHGs are reduced to 40 percent below 1990 levels by 2030. On December 14, 2017, the CARB adopted the 2017 Scoping Plan,

[19] Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

which provides a framework for achieving the 2030 target. The 2017 Scoping Plan does not provide project-level thresholds for construction projects.

The MBARD has not developed a threshold of significance for GHG emissions. The MBARD recommends using an adopted GHG significance threshold from an adjacent air district, such as the Bay Area Air Quality Management District (BAAQMD). The BAAQMD *CEQA Guidelines* identify a project specific threshold of 1,100 metric tons per year.[20] However, this threshold was developed to achieve the State's 2020 target of 1990 GHG levels. The project would not be constructed until 2022, thus the 2020 target is not appropriate for this project. BAAQMD has yet to publish a threshold for 2030 in response to SB 32 and the CARB Scoping Plan. So, in the interim, many lead agencies have been utilizing a threshold of significance that is 40% below the 2020 BAAQMD targets in their environmental documents. Consequently, for the purposes of this Initial Study, a bright-line threshold of 660 metric tons of CO_2e per year is utilized based on the GHG reduction goals of SB 32. This analysis amortizes the construction emissions over the lifetime of the project (30 years) and compares it to the bright-line threshold of 660 metric tons of CO_2e per year.

Discussion:

a. Generate greenhouse gas emissions – ***Less than Significant Impact. Less than Significant Impact*** **b. Conflict with an applicable plan –** ***Less than Significant Impact*****.** Monterey County does not have an adopted Climate Action Plan therefore, the proposed project would result in a significant impact if it would be in conflict with AB 32 State goals. The proposed project is a replacement project and would only temporarily generate GHG emissions over the approximately eight-month construction period. The proposed project has been reviewed relative to AB 32 measures and it has been determined that the proposed project would not conflict with the goals of AB 32. Thus, the proposed project would have a **less-than-significant impact.**

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? Monterey County does not have an adopted Climate Action Plan, therefore, the project would result in a significant impact if it would be in conflict the GHG reduction goals of SB 32. The project is a replacement project and would only temporarily generate GHG emissions over the eight-month construction period. As noted in a) above, the project would be below the bright-line significance threshold of 660 metric tons of CO2e per year developed for consistency with the SB 32 2030 GHG emissions reduction target. The project would not conflict with SB 32. Therefore, the project would have a **less-than-significant impact**.

[20] Bay Area Air Quality Management District. CEQA Air Quality Guidelines. May 2017. http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en

IX. Hazards and Hazardous Materials

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?				**X**
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			**X**	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				**X**
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				**X**
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?				**X**
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				**X**

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				**X**

Background:

Designated land uses within the proposed project area are a mix of agriculture and open space surrounded by commercial and residential use in the surrounding urban area. The proposed project area has historically been used for agricultural production that has now been converted to open space, wetland and riparian habitat. Past agricultural operations may have involved the use of petroleum fuels, pesticides, and fertilizers. The CAWD Wastewater Treatment Facility is located adjacent to the proposed project access road.

Discussion:

a. Hazardous Materials Transport and Use – *No Impact.* The proposed project is the replacement of an existing wastewater pipeline and treated wastewater outfall pipe, and would not involve the transport of any new hazardous materials**.** The project would eliminate the potential hazards associate with rupture of the existing pipelines, and **no impact** would occur.

b. Hazardous Materials Accidental Release - *Less than Significant Impact*. Project construction may involve the use of equipment, fuels, solvents, welding equipment, and other sources of potentially hazardous materials. BMPs-4 through11 in the Project Description, which is incorporated into the project, includes measures to minimize the risk of release of hazardous materials, and contamination of soil or groundwater by any such releases. This BMP would reduce the potential impact of release of hazardous materials to a **less-than-significant** level.

c. Hazardous Materials Emissions – *No Impact*. Two schools are located within one quarter mile of the proposed project's access road: Junipero Serra School and Carmel River Elementary School. The project is replacement of the treated-wastewater outfall and sewage force main, which is intended to reduce the hazards of accidental emissions of these wastes to the surrounding Carmel River and Lagoon waters, and to the Pacific Ocean immediately downstream. Therefore, the project would reduce this potential impact compared to existing conditions, and **no impact** would occur.

d. Hazardous Site List – *No Impact.* Historic and current land uses within the proposed project area could be associated with the use, generation, or disposal of hazardous materials. Designated land uses within the proposed project area are a mix of agriculture

and open space surrounded by commercial and residential use in the surrounding urban area. As discussed above, the proposed project area has historically been used for agricultural production. Pesticides and fertilizers were applied directly to the soil.

A regulatory database search for past hazardous material spills on properties within 1-mile of proposed project components was conducted[21]. The State Water Resources Control Board (SWRCB) database shows two incidents of leaking underground storage tanks (UST) near the site, at the CAWD Treatment Plant. Gasoline was discovered in the monitoring well, adjacent to the UST. Subsequently, the tanks were removed, the area remediated, and the case has been closed since April 2003. There are no instances of open and ongoing cases reported. The database search also found no reported incidents of hazardous materials being released in the immediate vicinity of the proposed project. Therefore, **no impact** would occur with respect to location near a contaminated site.

e. Airport Conflicts - ***No Impact*****.** The closest public use airport to the project site is Monterey regional Airport, approximately 6-7 miles northeast of the project site. The project is a sewer line replacement that would underground existing above-ground lines. There are no private airstrips in the project vicinity. The project is a sewer line replacement that would underground existing above-ground lines. Therefore, it would not affect or be affected by airport uses and **no impact** would result.

f. Emergency Response Plan - ***No Impact.*** The project is a sewer pipeline replacement, mostly in a lagoon. The primary construction access would be via a private roadway Therefore, it would not interfere with any roadways or other emergency access-ways. Therefore, **no impact** would result.

g. Wildland Fires - ***No Impact.*** California Department of Forestry and Fire Prevention (CAL FIRE) maps identify fire hazard severity zones in the State. Portions of nearby City of Carmel are designated a very high fire hazard severity zone (CAL FIRE, 2007)[22]. The proposed project area is not in a designated high or very high severity zone. The project itself is sewer line replacement, mostly in a trench or bored deep under a lagoon, which would have no potential to adversely affect wildfires. Therefore, the proposed project would not expose people or structures to significant risks associated with wildland fires, and **no impact** would result.

[21] California State Water Resources Control Board "GeoTracker" database, available online at: http://geotracker.waterboards.ca.gov/, and California Department of Toxic Substances Control "EnviroStor" database, available online at: http://www.envirostor.dtsc.ca.gov/public/.

[22] http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones

X. Hydrology and Water Quality

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?		**X**		
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?				**X**
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: i) result in substantial erosion or siltation on- or off-site; ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site; iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or iv) impede or redirect flood flows?			**X**	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?				**X**
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?		**X**		

Background:

Hydrologic Conditions and Processes

The Carmel River Watershed is located within the California Coast Ranges Geomorphic Province. The entire drainage area of the watershed is located on the western slopes of the Sierra De Salinas. The northwesterly flowing Carmel River originates approximately 35 miles upstream from Carmel Bay at an elevation of 3,500 feet above sea level. Streamflow in the Carmel River is directly attributed to rainfall. According to the National Weather Service, average annual precipitation is estimated between 18 to 20 inches. Like many other watersheds along the Central California Coast, the Carmel River watershed has a typical coastal California wet-dry seasonal pattern that can vary significantly. More than 90 percent of the annual rainfall typically occurs over the watershed during the six-month period between November and April.

Before entering the Pacific Ocean, the Carmel River enters a lagoon, located at the bottom of the watershed. The lagoon and associated wetlands, which are located immediately south of the City of Carmel-by-the-Sea, cover an area of approximately 100 acres. The lagoon is generally not connected to the ocean during times of very low or zero streamflow, when ocean waves build a barrier beach (sandbar) across the mouth of the lagoon and close the outflow channel.

The lagoon is subject to seasonal fluctuations depending on how connected it is to the ocean. When river inflow is relatively low and the lagoon is not open to the ocean, a dynamic equilibrium is reached between streamflow and groundwater inflows, outflow through the barrier beach, evapotranspiration, and ocean wave overtopping. In summer, this leads to lower water surface elevations. In the fall, prior to sandbar breaching, potentially abrupt increases in water surface elevations can occur due to overtopping of the sand bar by ocean water.

As streamflow increases in the fall and early winter, lagoon water surface elevations can rise to flood stage depending on precipitation patterns. When flooding does occur, residential developments along the northern edge of the lagoon and within the lagoon floodplain are threatened with flooding before the sandbar would typically open naturally. During Spring water levels are high as residual river flows continue and the sandbar closes. This dynamism results in seasonal changes in turbidity and salinity in the lagoon in terms of water quality, as well as seasonal fluctuation of surface water elevations.

The Central Coast Regional Water Quality Control Board (RWQCB) in their Basin Plan (RWQCB, 2016) has designated beneficial uses of the Carmel River as the following: municipal and domestic supply (MUN); agricultural supply (AGR); industrial service supply (IND); groundwater recharge (GWR); freshwater replenishment (FRESH); water contact recreation (REC1); noncontact water recreation (REC2); commercial and sport fishing (COMM); warm fresh water habitat (WARM); cold water habitat (COLD); wildlife habitat

(WILD); preservation of biological habitats of special significance (BIOL); rare, threatened, or endangered species (RARE); migration of aquatic organisms (MIGR); and spawning, reproduction, and/or early development (SPWN). Beneficial uses of the surface water from the Carmel River Estuary include the following: GWR; REC1; REC 2; COMM; WILD; COLD; MIGR; SPWN; BIOL; RARE; and estuarine habitat (EST)(RWQCB,2016). General water quality objectives exist for each of the beneficial uses identified. Surface water quality objectives have also been identified for the Carmel River for Total Dissolved Solids, chlorine, sulfate, boron and sodium.

In terms of baseline hydrologic data related to the lagoon, the Central Coast Watershed Studies Team (CCoWS) monitored water quality in the lagoon between 2004 and 2007. Salinity, dissolved oxygen, and temperature in the lagoon vary seasonally and with depth. The CCoWS noted that the topography and lack of mixing in the lagoon creates a layer of isolated saltwater in the bottom of the south arm of the lagoon. Water quality in the lagoon is influenced by freshwater inflow from the Carmel River, tidal levels, and ocean waters over topping the sandbar. Water quality often declines late summer, fall, and early winter months when the Carmel River flows are reduced or completely cease. When inflows from the Carmel River cease, groundwater infiltration becomes the only freshwater source of water into the lagoon.

According to a geotechnical report prepared by GTO Inc., surficial deposits upslope of the proposed crossing consist of artificial fill, as well as colluvium and floodplain deposits. Soils consists generally of loose sands intermixed with clay and silt material and should be considered to be potentially fast raveling during rainstorm events. Groundwater elevations are generally between 3 to 8 feet below ground surface upslope of the lagoon. Groundwater conditions are expected to vary depending on factors such as weather conditions, time of year, and water surface levels in the lagoon.

Regulatory Conditions

Federal and State Regulations

Flooding: The Federal Emergency Management Agency (FEMA) is tasked with responding to, planning for, recovering from, and mitigating against disasters. FEMA is responsible for determining flood elevations and floodplain boundaries based on USACE and approved agencies' studies; for coordinating the federal response to floods, earthquakes, hurricanes, and other natural or man-made disasters; and for providing disaster assistance to states, communities and individuals. FEMA prepares and distributes the Flood Insurance Rate Maps (FIRMs), which are used in the National Flood Insurance Program. These maps identify the locations of special flood hazard areas, including the 100-year flood zone.

The Flood Insurance and Mitigation Administration (FIMA), a component of FEMA, manages the National Flood Insurance Program (NFIP). The NFIP consist of three components: flood insurance; floodplain management; and flood hazard mapping. Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP

makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. Community participation in the NFIP is voluntary. In addition to providing flood insurance and reducing flood damages through floodplain management regulations, the NFIP also identifies and maps the nation's floodplains.

Water Quality: To address the issue of changes in surface water quality as a result of development and construction activities, the federal government implemented the National Pollution Discharge Elimination System (NPDES). NPDES is an amendment of the federal Clean Water Act from 1987 that mandates that each population center obtain a permit to discharge stormwater. The limits vary by category of industry and are based on a level of treatment that uses the best available technology. Stormwater that would be discharged from the site during construction activity would be subject to regulation under the NPDES program. The California State Water Resources Board is responsible for establishing water quality standards statewide and designates the Central Coast Regional Water Quality Control Board (CCRWQCB) for regulation of discharges of wastes and runoff in this area.

Construction activities on one acre or more or that disturb less than one acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Construction Permit (SWRCB Order No. 2009-09-DWQ; Modified 2010-0014-DWQ). The State Board established the General Construction Permit program to reduce surface water impacts from construction activities. Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation.

The Construction General Permit requires the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The Construction General Permit requires the preparation and implementation of a SWPPP for construction activities. The SWPPP must be prepared before the construction begins. The SWPPP must include specifications for best management practices (BMPs) that would need to be implemented during construction. BMPs are measures that are undertaken to control degradation of surface water by preventing soil erosion or the discharge of pollutants from the construction area. Additionally, the SWPPP must describe measures to prevent or control runoff after construction is complete and identify the procedures for inspecting and maintaining facilities and other project elements. The required elements of a SWPPP include:

- Site description addressing the elements and characteristics specific to the site;
- Descriptions of BMPs for erosion and sediment controls;
- BMPs for construction waste handling and disposal;
- Implementation of approved local plans;
- Proposed post-construction controls; and
- Non-stormwater management.

Examples of typical construction BMPs include scheduling or limiting activities to certain times of year, installing sediment barriers such as silt fence and fiber rolls, and maintaining equipment and vehicles used for construction. Non-stormwater management measures

include installing specific discharge controls during certain activities, such as paving operations, vehicle and equipment washing, and fueling. The RWQCB has identified BMPs in the California Stormwater Best Management Practice Handbook (California Stormwater Quality Association, 2003) to effectively reduce degradation of surface waters to an acceptable level.

Local Regulations

The County of Monterey also has water quality protection regulation in its County Code, as follows:

- Chapter 16.08 of the Monterey County Code identifies rules and regulations to control all grading, including excavations, fills and embankments, and establishes the procedures for the issuances of grading permits. Chapter 16.08 is intended to minimize erosion as a result of ground disturbing activities.

- Chapter 16.12 (Erosion Control) of the Monterey County Code sets forth required provisions for project planning, preparation of erosion control plans, runoff control, land clearing, and winter operations; and establishes procedures for administering those provisions. The code requires that specific design considerations be incorporated into projects to reduce the potential for erosion and that an erosion control plan be approved by the County prior to initiation of grading activities.

- Chapter 16.16 of the Monterey County Code identifies rules and regulations to control development within the floodplain. Chapter 16.16 is intended to promote public health, safety, and general welfare, and to minimize public and private losses due to flood conditions.

- Chapter 16.16 consists of regulations to: 1) restrict and/or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities; 2) require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction; 3) control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel flood waters; 4) control filling, grading, dredging, and other development which may increase flood damage; and 5) prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.

Discussion:

a and e. Water Quality Standards – *Less than Significant with Mitigation.* Implementation of the project during construction and in the operations phase could degrade the existing water quality of the estuary. During the construction phase of the project, the project would remove existing pipelines and cut the existing concrete-filled steel piles, which

support the existing pipe structure over the lagoon, at the mudline. This activity could temporarily increase turbidity if not properly mitigated. However, turbidity curtains would be installed around the proposed pipeline removal area to prevent turbid water from pier and pipeline removal activities from entering undisturbed portions of the lagoon. The old pipelines would be cut into segments and floated to the shore. Appropriate measures would also be implemented to prevent pipeline dismantling debris from falling into the lagoon. Mitigation Measure HYDRO-2 and the BMPs identified in the Project Description would reduce the potential impact of in-water construction on turbidity and other water quality indicators to *a* **less-than-significant** level.

Due to the proposed project's permanent impacts in the lagoon, a regulated water of the State, under state and Federal law the project shall also demonstrate compliance with federal Clean Water Act (CWA) Sections 404 and 401, and other waste discharge requirements of the Porter-Cologne Water Quality Control Act. This shall take place upon consultation with the USACE and RWQCBs during the project permitting phase in order to receive a federal and state level clearance prior to performing the project. These applications shall specifically evaluate impacts to jurisdictional waters and any potential mitigation or monitoring measures required for the project to conform to state and Federal Law.

Measures included CWA 401 and 404 permitting process would reduce permanent potential impacts associated with the implementation and operational phases of the project to a less-than-significant level.

Dewatering would be done at the tie-in points of new pipes in the uplands, which are located on the east and west sides of the trenching area. Mitigation Measure HYDRO-1 and the BMPs described in the Project Description, would reduce the potential impact of discharge of dewatering water from upland sites on turbidity and other water quality indicators to a **less-than-significant** level.

Erosion
Implementation of the project during construction could increase erosion in overland areas caused by earthmoving activities during construction. In general, water quality impacts would be significant if a water quality standard were to be exceeded or a beneficial use were to be impacted due to changes in water quality caused by erosion and/or siltation.

Exposed soil from excavated areas, stockpiles, and other areas where ground cover would be removed could be inadvertently transported off-site by wind or water. If not properly managed, this could increase sediment loads in surface water bodies, some of which are located on-site (e.g., the lagoon), and adversely impact the surface water quality, thereby adversely affecting water quality and designated beneficial uses. Mitigation Measure HYDRO-1 and HYDRO-3, and the BMPs described in the Project Description, would reduce the potential impact of erosion on turbidity and other water quality indicators to a **less-than-significant** level.

Spoils and Drilling Fluids Storage
During construction, spoils from excavation work would be stockpiled on either side of the lagoon. Drilling fluids would be stored in on-site tanks. Mitigation Measures HYDRO-1 and HYDRO-3, and the BMPs described in the Project Description, would reduce the potential impact of discharge of water from spoil stockpiles on turbidity and other water quality indicators to a **less-than-significant** level.

Hazardous Materials Release
Upland construction activities could also result in the accidental release of hazardous construction chemicals, such as adhesives, solvents, lubricants, and fuels. If not managed appropriately, these chemicals could adhere to soil particles, become mobilized by rain or runoff, and flow to downstream water bodies, including Carmel Bay/Pacific Ocean, degrading water quality. Mitigation Measures HYDRO-1, below, and the BMPs described in the Project Description would reduce this potential impact to a **less-than-significant** level.

Horizontal Directional Drilling- Frac-Out
The project would use horizontal directional drilling (HDD) to install the pipe under the lagoon. The depth of the drilling would be designed with safety factors to minimize the potential for "frac-out", where drilling fluids would migrate upward into the lagoon waters through fractures in the geologic materials above the bore hole. Mitigation Measure BIO-1B in the Biological Resources section of this document requires preparation of a frac-out plan detailing measures to minimize the potential for frac-out and response plans in case frac-out occurs. With implementation of this measure, frac-out impacts would be reduced to a **less-than significant level**.

b. Groundwater Supplies – *Less Than Significant Impact.* Implementation of the project could significantly deplete groundwater supplies if long-term groundwater use would occur as a result of implementation of the project. Construction of the proposed project would result in a limited, temporary, and minor dewatering operation on either end of the proposed pipe. No groundwater use is proposed with operation of the proposed project.

A project could substantially interfere with groundwater recharge if post-project conditions significantly modified areas on site where existing surface/groundwater exchanges take place. However, the size of the proposed trenches and bore would be small compared to the entire south arm of the lagoon where groundwater/surface water interactions are occurring.

Therefore, impacts related to interference with existing groundwater use and recharge patterns would be **less than significant**.

c (i-iv). Drainage - *Less than Significant Impact.* The proposed improvements would be mostly subsurface and would not have the potential to affect drainage patters. Therefore, impacts related to modification of existing drainage patterns are would be **less-than-significant**.

The project would not increase imperviousness of the site after implementation. Rather, the undergrounding of the pipeline system would result in a slight reduction of site imperviousness. Therefore, impacts related to modification of existing drainage patterns or flooding would be **less than significant**.

By removing the existing piles and pipelines crossing the south arm of the lagoon, the capacity of that portion of the lagoon to transmit flood flows would increase. Pier removal would also slightly lower water surface elevations in the lagoon as well by removing obstructions. The project facilities would be bored deep below the lagoon, and would therefore be protected from flood hazards and not affect any flood flows. **No impact** would occur.

d. Tsunami, Seiche, or Mudflow - ***Less Than Significant Impact.*** Tsunamis are open sea tidal waves generated by earthquakes. Tsunami damage is typically confined to low-lying coastal areas. The proposed project site is located within the mapped tsunami inundation area (California Emergency Management Agency et al., 2009). According to the Monterey County Operational Area Tsunami Incident Response Plan (Monterey County Office of Emergency Services, 2007) a locally generated tsunami may occur if a large enough earthquake occurs in or near Monterey Bay region. Such an earthquake could produce a tsunami that reaches shore in a matter of minutes. The plan states that, within Monterey County, there is a low likelihood of experiencing a tsunami. Because much of the pipeline would be relocated to a deep subsurface location under the lagoon, it would not be affected by mudflow, seiche or tsunamis. In fact, the pipeline would be better protected from such hazards than at present. Therefore, there would be **no impacts** to the project from inundation by seiche, tsunami, or mudflow.

Mitigation Measures

Mitigation Measure HYDRO-1: Implementation of SWPPP. Prior to construction of the proposed project, the applicant shall demonstrate compliance with the State Water Resources Control Board Construction General Permit, including implementation of erosion and stormwater quality control measures set forth in a Stormwater Pollution Prevention Plan (SWPPP) that would prevent substantial adverse effects on water quality during construction. Requirements for SWPPP are discussed in the regulatory section above. The SWPPP shall be prepared by a Qualified SWPPP Developer (QSD).

Mitigation Measure HYDRO-2 – Water Quality Monitoring Program. A water quality-monitoring program shall be implemented to measure levels of turbidity in the south arm of the lagoon near the site during in water work. Should high levels of turbidity be identified in association with in water work, additional turbidity control measures shall be implemented.

Mitigation Measure HYDRO-3 – Seasonal Restriction on Ground Disturbing Activities within 100-feet of Wetlands. Ground disturbance work within a 100-foot buffer from the Carmel River Lagoon would be restricted to the June 15th to October 31st SCCC steelhead work window.

XI. Land Use and Planning

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?				**X**
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				**X**
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				**X**

Background:

The project alignment for both the eastern access road and pipeline extends along a California State Parks easement through Carmel River State Beach property from where the pipelines exit the treatment plant site to the pump station (sewage force main) and over the hill to the ocean (treated wastewater outfall pipe). Nearby land uses include open space associated with the State Beach, residential uses on the ridge above the pump station, and the CAWD treatment plant facility.

The project alignment is designated as Wetlands and Coastal Strand and Agricultural Preservation in the Monterey County General Plan [23]. It is zoned as RC-D CZ, (Resources Conservation, Coastal Zone) and CAP-D (CZ) (Coastal Agricultural Preserve, Coastal Zone) in the County Zoning Ordinance.[24]

[23] Monterey County Land Use Plan, Carmel Area, as amended, March 9, 1995

[24] Monterey County Zoning, Coastal Implementation Plan – Title 20 (accessed October 19, 2017)

Discussion:

a. Division of Community – *No Impact.* The project pipelines would be replacing existing pipelines, would be subsurface and in existing utility easements. Therefore, the project would have no potential to alter or divide any community. There would be **no impact.**

b. Plan Conflict – *No Impact.* The replacement sewer lines line would be permitted under all of the zoning and General Plan designations along the alignment. Therefore, the project would have **no impact** with respect to consistency with plans and policies. The project's conformance with Biological Resources plans and policies are addressed in item e) in that section of this Initial Study.

c. Habitat Plan Conflict - *No Impact.* No habitat conservation plans or natural community conservation plans apply to the project site. Please see the Biological Resources section for a discussion of the project's conformance with various State and local plans and policies with respect to protected habitats and species. There would be **no impact** on such plans.

XII. Mineral Resources

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				**X**
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				**X**

Background:

There are no known mineral resources on the site. The Open Space and Conservation Element of the Monterey County General Plan (Figure 10) does not identify any mineral resources at the project site. Sand, gravel, and petroleum are the primary mineral resources extracted in Monterey County. Construction-grade aggregate (sand, gravel, and crushed stone) is the most abundant and commonly used mineral resource.

Discussion:

a. and b. Mineral Resources - *No Impact*. The proposed project site contains sand; however, the proposed project site does support any mining activities and due to the biologic sensitivity of the area and its inclusion in the State Parks Wetland and Lagoon Preserve and Caltrans biological mitigation bank, future mineral extraction in this area is very unlikely. Therefore, the proposed project would not result in the loss of availability of a known mineral resource. There would be **no impact** from the project.

XIII. Noise

Would the project result in:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in vicinity of the Project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?		X		
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
c) For a project within the vicinity of a private airstrip, or within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?				X

Background:

The project site is surrounded by open space and residential uses and extends to within 100 feet of the Pacific Ocean (see Figure 2). The nearest sensitive receptors are residences on Calle La Cruz. The area of intense construction would be in the staging and drilling work areas. The closest residences on the western side of the project site are approximately 100 feet from the work areas and approximately 50 feet from the staging areas.

To quantify existing ambient noise levels in the immediate project vicinity, RCH conducted short-term (10-minute) measurements at four locations in the project site vicinity. Figure N-1 in the Noise Appendix shows the location of the noise measurements. The noise measurements are summarized in Table NOI-1 below. In general, the project site is a quiet location. The dominant source of existing noise in the vicinity of the project is traffic noise from Highway 1. The measurements confirm this is a quiet location; average short-term noise levels on the measurement day were between 46 and 52 dB in the project site vicinity.

Table NOI-1: Existing Noise Measurements

Location	Time Period	Noise Levels (dB)	Noise Sources
Site 1. Calle La Cruz pump station, 260 feet from the centerline of Calle La Cruz, see Figure N-1 in Noise Appendix	Monday October 23, 2017 10:50-11:00 a.m.	5-minute Leq's: 50, 50	Wind up to 62 dB. Pedestrian and dogs passing by is 55 dB. Background noise is 42 dB. Quieter noises include birds, back-up beepers, distant traffic, and a dog barking.
Site 2. Northeast side of Calle La Cruz cul-de-sac, see Figure N-1 in Noise Appendix	Monday October 23, 2017 11:09-11:19 a.m.	5-minute Leq's: 52, 48	Passing car is 58 dB. Airplane is 57 dB. Wind is up to 56 dB. Background noise is 42 dB. Quieter noises include pedestrians, distant traffic, and birds.
Site 3. North end of trail along the lagoon, 165 feet from the centerline of Calle La Cruz, see Figure N-1 in Noise Appendix	Monday October 23, 2017 11:25-11:35 a.m.	5-minute Leq's: 48, 46	Wind up to 53 dB. Distant traffic is up to 47 dB. Background noise is 43 dB. Quieter noises include birds and a back-up beeper.
Site 4. Path between ocean and the neighborhood, 200 feet from the centerline of Ribera Road and 230 feet east of the Pacific Ocean, see Figure N-1 in Noise Appendix	Monday October 23, 2017 11:46-11:56 a.m.	5-minute Leq's: 48, 48	Construction noise up to 55 dB. Background noise is 44 dB. Quieter noises include waves, pedestrians, birds, and wind.

Source: RCH Group, 2017

State Guidelines

The State Land Use Compatibility standards for Community Noise (Table 4 of the Noise Appendix) indicate that for Low Density Residential, a Community Noise Exposure up to 60 dB (Ldn or CNEL) is Normally Acceptable, and a Community Noise Exposure up to 70 dB (Ldn or CNEL) is Conditionally Acceptable.

Monterey County General Plan

The Safety Element of the Monterey County General Plan (Monterey County, 2010) combines the state mandated safety and noise elements. It identifies sources of noise and

provides policies addressing existing and foreseeable noise impacts. Relevant policies include:

S-7.9: No construction activities pursuant to a County permit that exceed "acceptable" levels [according to the Land Use Compatibility Standards for Community Noise from the State Guidelines] shall be allowed within 500 feet of a noise sensitive land use during the evening hours of Monday through Saturday, or anytime on Sunday or holidays, prior to completion of a noise mitigation study. Noise protection measures, in the event of any identified impact, may include but not be limited to:

- Constructing temporary barriers, or
- Using quieter equipment than normal.

S-7.10: Construction projects shall include the following standard noise protection measures:

- Construction shall occur only during times allowed by ordinance/code unless such limits are waived for public convenience;
- All equipment shall have properly operating mufflers; and
- Lay-down yards and semi-stationary equipment such as pumps or generators shall be located as far from noise-sensitive land uses as practical.

Monterey County Noise Ordinance

Chapter 10.60 of the Monterey County Code of Ordinances discusses Noise Control. Relevant Sections include:

10.60.030: Operation of noise-producing devices restricted. At any time of the day, it is prohibited within the unincorporated area of the County of Monterey to operate, assist in operating, allow, or cause to be operated any machine, mechanism, device, or contrivance which produces a noise level exceeding 85 dBA measured 50 feet therefrom. The prohibition in this Section shall not apply to aircraft nor to any such machine, mechanism, device or contrivance that is operated in excess of 2,500 feet from any occupied dwelling unit.

10.60.040: Regulation of nighttime noise. The following regulations shall apply to nighttime noise:

A. It is prohibited within the unincorporated area of the County of Monterey to make, assist in making, allow, continue, create, or cause to be made any loud and unreasonable sound any day of the week from 9:00 p.m. to 7:00 a.m. the following morning.

B. Within the time period 9:00 p.m. to 7:00 a.m. the following morning, and for the purposes of this Section, a loud and unreasonable sound shall include any sound that is plainly audible at a distance of fifty (50) feet in any direction from the source of the sound or any sound that exceeds the exterior noise level standards [nighttime exterior noise levels of 45 Leq or 65 Lmax].

Discussion:

a. Generation of a substantial temporary or permanent increase in ambient noise levels – *Less than Significant Impact with Mitigation.* Project construction would take approximately eight months to complete, with two months of mobilization, two months of Horizontal Directional Drilling (HDD), two months for pipeline tie-in, two weeks of work directly within the lagoon, and 1.5 months of demobilization. Crews would typically work from approximately 6:00 a.m. to 5:00 p.m., Monday through Friday.

The primary noise impact would be from installation of the pipelines near residences on the western side of the project site. The nearest residence would be within approximately 100 feet of the western horizontal directional drilling (HDD) equipment location. Construction activities would require the use of numerous pieces of noise-generating equipment, including but not limited to an HDD drill rig, excavating machinery (e.g., excavator, loader, etc.), and other construction equipment (e.g., crane, trucks, air compressor, generator, etc.). Use of this equipment would cause a substantial temporary increase of ambient noise levels in the project vicinity.

The Monterey County Noise Ordinance prohibits operation of any device which produces a noise level exceeding 85 dB measured 50 feet the source device. Table 2 of the Noise Appendix shows maximum noise levels generated at 50 feet by various types of construction equipment. Horizontal drilling may use generators, the HDD drill rig, drill pile storage, and an excavator. The loudest equipment anticipated from the project would be the HDD drill rig. Previous studies indicate noise levels from HDD drill rigs could reach levels of up to 83-90, dB at 50 feet (CPUC 2009, CPUC, 2013; Millennium Pipeline Company, 2015). Depending on the type of HDD drill rig and associated equipment, noise levels at 50 feet could exceed the Monterey County Noise Ordinance noise level thresholds (85 dB at 50 feet). HDD entry on the western side of the project site would also involve driving a steel pipe casing larger than the new pipes into the ground to a depth of 15 feet along the pipeline alignment/profile to allow the pipe to be installed up to the higher elevation on the west side of the HDD boring. These activities could result in potentially **significant noise impacts** to nearby residents. A pipe ram would be used to drive the steel pipe casing. This activity could also exceed the Monterey County Noise Ordinance. The pipe ram is expected to be used on two days for approximately two hours each day.

Construction worker traffic and construction-related material haul trips would generate noise and incrementally raise ambient noise levels along local haul routes, depending on the number of haul trips made and types of vehicles used. Construction activities and associated traffic would occur primarily during the daytime. These impacts are not expected to be significant.

The implementation of Mitigation Measure NOISE-1 would reduce temporary construction noise impacts to **less than significant.**

Construction of the project would be temporary, and operational noise (after construction) would not differ from existing conditions. Therefore, the project would not result in a substantial permanent increase in ambient noise levels in the project vicinity.

b. Excessive Vibration – *Less Than Significant Impact*. At the highest levels of vibration, construction/demolition damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. For most structures, a peak particle velocity (PPV) threshold of 0.5 inches per second (in/sec) or less is sufficient to avoid structural damage. The Federal Transit Administration recommends a PPV threshold of 0.5 in/sec for residential and commercial structures (FTA, 2006). The HDD area would be approximately 100 feet from the nearest residences. As shown in Table NOI-2, the predicted vibration levels from HDD equipment, bulldozers, and loaded trucks at a distance of 100 feet would be well below the 0.5 in/sec PPV threshold for residential and commercial structures. The project would not involve the use of pile drivers. Therefore, vibration impacts would be **less than significant**.

Table NOI-2: Representative Vibration Source Levels for Construction Equipment

Equipment	Peak Particle Velocity at 50 Feet (in/sec)	Peak Particle Velocity at 100 Feet (in/sec)
Large Bulldozer	0.031	0.011
HDD Drill Rig	0.031	0.011
Loaded Trucks	0.027	0.009
Small Bulldozer	0.001	0.0003

Source: Federal Transit Administration, 2006.

Note: Vibration levels at 50 and 100 feet were calculated using the equation provided by FTA that may be used to estimate vibration at different distances based on reference vibration levels at 25 feet for various construction equipment. The Federal Transit Administration recommends a PPV threshold of 0.5 in/sec for residential and commercial structures (FTA, 2006)

c. Airport Noise - *No Impact*. There are no private airstrips in the site vicinity. The closest public use airport to the project site is Monterey Municipal Airport, located about 6-8 miles northeast of the site. Noise from that airport would not be audible at the site, and the project is not subject to noise impacts. Therefore, ***no impact*** would result.

Mitigation Measures

Mitigation NOISE-1 – Construction Noise Reduction Measures.
To reduce noise impacts due to construction at nearby sensitive receptors, the construction contractor shall implement the following mitigation measures:

1. Construction activities shall only take place during the hours between 6 a.m. and 5 p.m. Monday through Friday. HDD drilling activities shall be limited to 7 a.m. to 5 p.m.

2. A temporary noise barrier (i.e., barrier wall, sound blanket[25], sound curtain, etc) shall be installed between the location of the pipe casing ramming activity, and residents on the western side of the project site. Temporary noise barriers shall be installed such that noise levels at nearby residences on the western area of the project site are reduced. The height and location of the temporary noise barrier shall be determined based on the size and location of the pipe ram to be used. Temporary noise barriers typically provide a 5 to 10 dBA attenuation.
3. Construction equipment shall be properly equipped with standard mufflers properly maintained in good working order.
4. If stationary construction equipment would cause substantial noise, it shall be located as far away from sensitive residences as necessary to reduce noise and/or be equipped with engine-housing enclosures.
5. Designate a "construction noise coordinator" who would be responsible for responding to complaints about construction noise. The construction noise coordinator shall determine the cause of the complaint and shall require that reasonable measures warranted to correct the problem be implemented. The telephone for the construction noise coordinator shall be conspicuously posted at the construction site.

[25] Sound barrier for Horizontal Directional Drilling (HDD). *https://www.enoisecontrol.com/sound-barrier-horizontal-directional-drilling/*

XIV. Population and Housing

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				**X**
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				**X**

Background:

The proposed project would construct a replacement sewage force main and treated wastewater outfall pipe, which would be consistent with the site's zoning and General Plan designations. No residences would be constructed as part of this project. These pipelines are not a limitation to growth in the project area.

Discussion:

a. Population Growth - *No Impact*. The project would replace existing sewer outfall and force main lines; no expanded service capacity is proposed. Therefore, the project would have **no impact** on growth inducement.

b, c. Displace Housing or People – *No Impact*. The project alignment contains no housing, and the proposed project would not displace any housing or people. There would be **no impact.**

XV. Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Fire protection?				**X**
b) Police protection?				**X**
c) Schools?				**X**
d) Parks?		**X**		
e) Other public facilities?				**X**

Background:

Fire Protection: The unincorporated Monterey County is within the Cypress Fire Protection District (CFPD). Under contract with the CFPD, the California Department of Forestry and Fire Protection (CAL FIRE) provides primary fire protection service to the vicinity of the proposed project site. The closest CAL FIRE station to the proposed project area is the Rio Road Station at 3775 Rio Road, Carmel, which is located approximately two miles east of the proposed project site. The Carmel Hill Forestry and CAL FIRE Station are located near the Highway 1 and westbound Highway 68 interchange. The station is approximately three miles north of the proposed project site. In addition, the City of Carmel fire station (with secondary responsibility via a shared service agreement) is located 1-mile to the north.

Police Protection: The proposed project site is in the unincorporated area of Monterey County and would be served from the Monterey County Sheriff's Office Coastal Station located in in Monterey on Aguajito Road. The Coastal Station's estimated response time is varied depending on the location, number of personnel on duty, and time of the call; however, the general range is five to ten minutes.

Within Carmel River State Beach, the State Parks employees provide maintenance, waste removal, and public safety/police patrol. The closest ranger station to the proposed project site is at Point Lobos, approximately one mile south. A minimum of one public service patrol ranger is stationed there at all times of the day and night to respond to emergency calls. The local district of State Parks office is located approximately 6.5 miles north of the site at 2211 Garden Road, Monterey, CA 93940, where the full staff for all local parks is based.

Schools: The public schools closest to the project site are Junipero Serra School and Carmel River Elementary School. These schools are about one quarter mile north of the proposed project's access road.

Parks: The project pipeline alignment, and eastern staging area and access road are within the California Department of Parks and Recreation's Carmel River State Beach property. This park is undeveloped in the project site, but public access to the State Beach to the west of the site is permitted. There are a number of trails on or adjacent to the project construction area. These are shown on Figure 10.

Discussion:

i) Fire Protection - *No Impact*. No new fire protection services would be required as a result of the proposed project. Upland construction activities (clearing of access, laydown, and staging areas) would take place near heavily vegetated areas. Operation of power tools and equipment during project construction could provide an ignition source and increase fire risk in the area. Storage of flammable materials (e.g., fuel) during project construction could also increase fire risk. However, project construction activities would follow the requirements for fire safety during construction contained in the California Fire Code that are applicable to outdoor areas. Adherence to the applicable requirements of the California Fire Code would ensure that potential fire risk during construction would be **less than significant**.

ii) Police Protection - *No Impact*. The new force main and outfall pipelines would have no potential to increase demand on police protection services because they would not result in any new development and their construction would be temporary and not bring substantial numbers of people to the area.

iii) Schools - *No Impact*. The new force main and outfall pipelines would have no potential to increase demand on school services because they would not result in any new development and their construction would not bring substantial numbers of people to the area.

iv) Parks – *Less than Significant with Mitigation.* Project construction activities on the East side of the lagoon would occur on State Parks Preserve and Caltrans mitigation bank lands, which, although informally accessed by birders and other recreational users, are not designated public use areas. Existing networking trails associated with Carmel Beach State Park on the West side of the lagoon that are accessed from the end of Calle La Cruz *cul de sac* would be partially impacted by construction as shown in red and yellow on Figure 10 and as described in more detail below. Work is planned to keep access open through the area using adjacent trails and keeping pedestrians safe by means of flaggers.

Figure 10

Carmel Beach State Park Construction Area Trails Map

Source: Johnson Marigot Consulting, LLC

Specific trails that would be affected are shown on Figure 10 and are described in detail here:

1. Trail from Calle La Cruz to the Work Areas – This trail/access road would be kept open during construction with limited disruption to pedestrian use. During times of active construction this access road would be used occasionally for transporting equipment and materials to the work areas. When equipment is moving along this trail flaggers would delay pedestrians from passing through until the construction equipment has reached the work area and it is safe to walk through.

2. Trail Through HDD Work Area – This trail/access road would be closed for the duration of the project. There are two alternate routes (North and South) for pedestrians to reach their destination and therefore closing the trail does not limit public access to the beaches and walking trails. Signs would be posted to direct pedestrians to one of the two substitute trails. This trail section is being used for equipment laydown to reduce the amount of midden soils that are disturbed by work in this area.

3. Trail Laydown for Pipe Pullback – For two separate periods of about one week, pedestrian walking along this trail may be impacted by construction activities as piping is laid out on this trail prior to pulling it into the bore hole. During this time the pipe would be on the ground along the side of the trail and this would partially block the trail. During this time pedestrian flaggers would be positioned to help guide people through the trail and reach their destination. During non-working hours the trail would be kept open and the pipe positioned not to block through access.

Mitigation Measure PARKS-1, below, would reduce this impact to a **less-than-significant** level.

v) Other public facilities - *No Impact.* The proposed project would not affect other public facilities by increasing demand beyond anticipated levels.

Mitigation Measures

Mitigation PARKS-1 – Public Access to Carmel River State Beach.
Continued public access shall be maintained to the ocean/beach during construction using existing networking trails that are accessed from the end of Calle La Cruz cul de sac. The contractor shall provide "traffic control" for pedestrians during movement of construction equipment or during short-term staging of piping along trails immediately prior to pullback.

XVI. Recreation

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that physical deterioration of the facility would occur or be accelerated?				**X**
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				**X**

Background:

The proposed project access road, staging areas and pipeline alignment runs through lands of the California Department of Parks and Recreation's Carmel River Lagoon and Natural Preserve (a part of Carmel River State Beach) and a Caltrans biological mitigation bank. The Carmel River State Beach is a 297-acre area that includes the Carmel River Lagoon and Wetland Natural Preserve, Ohlone Coastal Cultural Preserve, a mile-long beach, a lagoon restoration site, an organic farm with historic buildings, and bird habitat that includes waterfowl and songbirds.

Discussion:

a. Increase Park Usage - *No Impact.* The project is a treated wastewater outfall and force main replacement for existing pipes. The pipelines would not affect population or park use.

b. Impact of Project Recreational Facilities - *Less than Significant Impact.* The proposed project would not involve construction or expansion of new recreational facilities. Therefore there would be **no impact** from any such facilities.

XVII. Transportation/Traffic

Would the project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit roadways, pedestrian and bicycle facilities?				**X**
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.3, subdivision (b)?				**X**
c) Substantially increase hazards due to design features (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				**X**
d) Result in inadequate emergency access?				**X**

Background:

The project alignment is accessed via US Highway 1 and the driveway to the CAWD Wastewater Treatment Plant, and a partially overgrown unpaved maintenance road on California State Parks property on the eastern side of the project area; and via Calle la Cruz on the western side of the project area.

Discussion:

a. Conflict with an Applicable Plan Regarding Effectiveness of Circulation System, including Pedestrian and Bicycle Facilities - *No Impact*. During construction, the project would generate approximately 20 daily automobile trips, for project construction workers, and up to an additional 5 to 10 truck trips per day for materials and equipment delivery during the eight-month construction period. This level of additional trips would not materially affect traffic on Highway 1 or any other local streets. The project would not conflict with Monterey County policies supporting alternative transportation. It would neither generate demand nor alter any existing or proposed alternative transportation (bus, bike, or pedestrian) routes. The project would not generate any additional traffic after construction.

b. Conflict with Stave VMT Reduction Goals – *No Impact*. State VMT goals do not apply to construction truck trips or other short-term construction traffic. The project would not

increase traffic post-construction. Therefore the project would not conflict with CEQA Guidelines Section 15064.3, subdivision (b), which requires reduction in long-term VMT for projects with substantial trip generation.

c. Hazards - *No Impact.* The Project would not create any hazards due to design features on the adjacent street system. As noted in Item a, above, a small number of truck trips would occur during construction, with no new trips after construction. Trucks regularly use Highway 1 and the treatment plant access road, with no major safety hazards in this area.

e. Emergency Access - *No Impact.* The project construction would not require any road or lane closures or otherwise impede emergency access.

XVIII. Tribal Cultural Resources

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		**X**		
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		**X**		

Background:

The west side of the project lies within the Ohlone Cultural Preserve. The preserve, within Carmel River State Beach was established in 1987 with the intent of preserving Native American resources

within the park. Please see the Cultural Resources section of this Initial Study for a discussion of the site's cultural resources, impacts, and mitigation measures.

Based on consultation with the NAHC, CAWD staff contacted the following tribal representatives by letter dated February 4th, 2021 regarding their knowledge and concerns regarding potential project effects to Tribal Cultural Resources:

1. Mr. Tom Little Bear Nason and Ms. Sue Morely of the Esselen Tribe of Monterey County;

2. Mr. Tony Cerda, Chairperson, Costanoan Rumsen Carmel Tribe

3. Mr. Bob Burton, Chairperson of the Costanoan Rumsen Carmel Tribe;

4. Ms. Lydia Bojorquez, Vice Chair, KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur

5. Mr. Valentin Lopez, Chairperson of the Amah Mutsun Tribal Band;

6. Ms. Irenne Zwierlein, Chairperson of the Amah Mutsun Tribal Band of Mission San Juan Bautista;

7. Ms. Ann Marie Sayers, Chairperson, of the Indian Canyon Mutsun Band of Costanoan;

8. Ms. Louise-Miranda Ramirez, Chairperson and Christiana Arias, Vice Chairman of the Ohlone/Costanoan-Esselen Nation;

9. Mr. Patrick Orozco, Chairperson, Costanoan Ohlone Rumsen-Mutsun Tribe;

Responses were received from: (1) Esselen Tribe of Monterey County, (2) Costanoan Rumsen Carmel Tribe (Tony Cerda), (3) Costanoan Rumsen Carmel Tribe (Bob Burton), and (4) KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur. The following is a summary of the correspondences with each of these tribes. Letters received from the Tribal Representatives are included as Appendix D.

Esselen Tribe of Monterey County – Jana Nason, Sue Morely

A letter was received by email on February 5th, 2021 that requested formal consultation. Formal consultation was held on March 17th, 2021 with Jana Nason. Jana was interested in providing onsite monitoring during construction and tribal involvement in doing the revegetation work as a community project. She indicated that she would be able to coordinate with other tribes such as KaKoon Ta Ruk and Costanoan Rumsen Carmel on organizing monitors from different groups. During the consultation a draft set of mitigation measures was discussed and it was requested that Jana provide a written response to the consultation by March 26th, 2021 outlining what requests they had for the project. A letter identifying these mitigation measures (including tribal and archaeologist monitoring and a Phase II test program if the resources would be impacted) was sent to the District on April 19, 2021. The letters are included in Appendix D.

Costanoan Rumsen Carmel – Tony Cerda, Desiree Munoz

Received an email on March 9th, 2021 from this tribe. The email did not request formal consultation but acknowledged receipt of the notice. Formal consultation was held on March 23rd, 2021 with

Desiree Munoz. Desiree described the need for a tribal monitor and significance of the midden. She liked the idea of having the tribes help planting plants during the revegetation at the midden. During the consultation a draft set of mitigations measures was discussed and it was requested that Desiree provide a written response to the consultation by March 26th outlining what requests they had for addition to the project.

An email was received on March 26th, 2021 requesting a monitor be present when construction starts, and that Costanoan Rumsen wants to work with all neighboring tribes. The email asked for the Costanoan Rumsen to be part of the revegetation project to replant native plants on the surface after construction. Lastly cultural sensitivity training for workers on the project was requested. The full email is in Appendix D.

Costanoan Rumsen Carmel – Bob Burton

Received an email on February 8th stating that the tribe had no objection to the plan. They asked to be notified of any discovery of artifacts or remains. Bob was contacted via email on March 23rd asking if they wanted to have a formal consultation or if they had any other comments or requests. No response was received. Correspondence is included in Appendix D.

KaKoon Ta Ruk Band of Ohlone-Costanoan – Lydia Bojorquez, Isaac Bojorquez

A letter dated February 16th, 2021 was received by the Kakoon Ta Ruk Band that requested formal consultation. Formal consultation was held on March 29th, 2021 with Isaac and Lydia Bojorquez. Lydia and Isaac were interested in providing onsite monitoring, and sensitivity training, and discussed how they would like continuity in the monitoring. They also were interested in protecting the surface of the midden with the use of soil stabilization mats. During the consultation a draft set of mitigation measures was received by email correspondence on April 27th, 2021 (see Appendix D)

Discussion:

a. i and ii, Tribal Cultural Resources - *Less than Significant Impact with Mitigation*. One CRHR-eligible Native American site has been identified on the west side of the lagoon and is within the Ohlone Cultural Preserve. No other tribal resources were identified during the consultations. None of the tribal representatives contacted as part of the cultural resources assessment expressed opposition to the project as long as mitigations, such as tribal monitoring, was included.

The project would involve ground-disturbing activities within a prehistoric site P-27-000150. In addition, ground disturbing activities may reveal subsurface deposits not readily visible during field inspection. Therefore, it could have potentially significant impacts on recorded or previously undiscovered resources, including human remains. Mitigation Measures in Section V. (CULT-1, -2, and -3) and Mitigation Measures TRIB-1 through TRIB-4, below, which specifically address procedures requested during consultations with the tribes, would reduce impacts to Tribal Cultural Resources to a less-than-significant level.

Mitigation Measures

Mitigation Measure TRIB-1: Tribal Monitoring. During AB52 consultations three tribes (KaKoon Ta Ruk, Esselen of Monterey County, and Costanoan Rumsen Carmel) requested that tribal monitoring be conducted. KaKoon Ta Ruk requested that there be continuity of monitoring and therefore requested that if multiple tribes are monitoring that there be at least one monitor who is a

primary monitor and that a secondary monitor could be rotated in to allow multiple tribes involvement in the monitoring. All three tribes will be contacted at least 7 days before work within site P-27-000150 and requested to provide a tribal monitor. Tribes will be further notified 24 hours prior to any work occurring that may disturb midden topsoil or subsoil within site P-27-000150.

Mitigation Measure TRIB-2: Cultural Sensitivity Training. During AB52 consultations three tribes (KaKoon Ta Ruk, Esselen of Monterey County, and Costanoan Rumsen Carmel) requested that cultural sensitivity training be included in the project for all construction personnel working in identified culturally sensitive areas. The onsite tribal monitor will provide cultural sensitivity training on an as-needed basis to keep all personnel onsite informed.

Mitigation Measure TRIB-3: Revegetation Involvement. During AB52 consultations three tribes (KaKoon Ta Ruk, Esselen of Monterey County, and Costanoan Rumsen Carmel) requested that tribal community members be given the opportunity to participate in revegetation work for areas of P-27-000150 disturbed during the project. The project will include providing native plants to tribes for a one-day tribal community planting event at the site. This will be done as a compliment to revegetation requirements included in Avoidance and Minimization Measure 4 (AMM-4) in Table 2, and Mitigation Measure BIO-1, and not in-lieu of these measures.

Mitigation Measure TRIB-4: Treatment Protocol for Handling Human Remains and Cultural Items Affiliated with the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria. During AB52 consultations KaKoon Ta Ruk requested that any discoveries be handled in accordance with their treatment protocol (See Appendix D). This treatment protocol, except as it conflicts with applicable law or rights that California State Parks may have, will be followed in the event a significant discovery is uncovered.

XIX. Utilities and Service Systems

Would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?				**X**
b) Have sufficient water supplies available to serve the Project and reasonably foreseeable future development during normal, dry and multiple dry years?			**X**	
c) Result in a determination by the waste water treatment provider, which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?				**X**
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			**X**	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				**X**

Background:

The project would generally follow an easement already in use for the existing force main and treated wastewater outfall pipelines.

Discussion:

a*. Required New Water or Wastewater Treatment Facility – *No Impact;* c. Exceed Wastewater Treatment Requirements - *No Impact. The project is a replacement of existing force main and treated wastewater outfall pipelines that would not result in any new sewage generation. Portable toilets would be used to provide restroom facilities for project workers during the construction period. The existing CAWD wastewater treatment plant would not be affected by the project.

b. Water Supplies - *Less than Significant Impact.* The proposed project would consume small amounts of water for dust control along the access road and in the staging areas during construction, which would be a **less-than-significant** impact.

c. Wastewater Service - *No Impact.* The project would not generate any wastewater or affect any wastewater treatment facility. The existing lines would not be removed until after the replacement lines are operational. Therefore, the project would have **no adverse impact** on wastewater treatment.

d. Landfill Capacity – *Less than Significant Impact.* The project would generate small amounts of construction wastes associated with the removal and disposal of the existing pipelines, and small quantities of soil may be removed from the site by the project contractor, if needed. This would not substantially affect landfill capacity in the area. The project would generate no wastes after completion of construction. Therefore, this impact would be **less than significant**.

e. Solid Waste Statutes and Regulations – *No Impact.* As described in item d, above, the project would generate small quantities of solid wasted during construction only. Most excavated soils would be reused as backfill. Any contaminated soils encountered would be tested and disposed of at an appropriate facility. Therefore, the project would have **no impact** on solid waste regulations.

XX. Wildfire Hazards

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the Project:

Environmental Issue	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?				**X**
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose Project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?				**X**
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?				**X**
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				**X**

Background:

California Department of Forestry and Fire Prevention (CAL FIRE) maps identify fire hazard severity zones in the State. Portions of nearby City of Carmel are designated a very high fire

hazard severity zone (CAL FIRE, 2007)[26]. The proposed project area is not in a designated high or very high severity zone.

Discussion:

a-d. The project itself is sewer line replacement, mostly in a trench or bored deep under a lagoon, which would have no potential to adversely affect wildfires. Fire prevention BMPs would be implemented during construction at the staging/laydown areas to assure that fire hazards are not created during construction. The staging/laydown areas would be cleared of vegetation so that inadvertent sparks or other potential ignition sources would be away from vegetated areas. No new fire infrastructure would be required by the project. No people would be subjected to increased fire hazards or related soil instability risks. Because there would be no fire hazards, the project would not create potential water quality impacts associated with erosion, other than those discussed (and mitigated) in the Hydrology section. Therefore, the proposed project would not expose people or structures to significant risks associated with wildland fires, and **no impact** would result.

[26] http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Environmental Issue	Potentially Significant	Less Than Significant with Mitigation	Less Than Significant	No Impact
a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of an endangered, rare or threatened species or eliminate important examples of the major periods of California history or prehistory?		**X**		
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?				**X**
c) Does the project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?			**X**	

Discussion:

a. ***Less than Significant with Mitigation.*** As discussed in the Biological Resources Section of this document, with the incorporation of mitigation measures, the project would not have the potential to degrade the quality of the environment, substantially reduce the

habitat of fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal. Similarly, the project's potential impacts to cultural resources would be mitigated to a **less-than-significant** level.

b. ***Less Than Significant.*** Cumulative impacts of the project and other planned, approved, or reasonably foreseeable projects have been assessed in this Initial Study. Three related projects have been proposed by Monterey County for the area to reduce flood hazards to houses to the north of the Carmel River, and were the subject of a Draft Environmental Impact Report prepared in December 2016. These are the Carmel Lagoon Ecosystem Protective Barrier, Scenic Road Protection Structure, and Interim Sandbar Management Plan Project. Project components include:

Ecosystem Protective Barrier (EPB)
The proposed EPB includes a setback of up to 40-feet from the property line with a top of wall elevation of 17.5 feet. This option was recommended because it would:

- Increase protection of facilities and homes accounting for sea level rise over the next 50 years;
- Minimize ecological impacts by eliminating drainage infrastructure and fill;
- Minimize visual impacts with a lower height and greater area of vegetative cover;
- Reduce noise because of smaller pumps with less frequent pumping; and
- Increase area that serves as a bioswale to collect urban runoff.

Scenic Road Protection Structure (SRPS)
The preferred alternative SRPS would be located at the toe of the sand slope along Scenic Road. This proposed SRPS involves excavation of the beach that would be followed by installation of a geotextile, then by two layers of armor rock. The alignment allows continued use of the beach area located north of the barrier when (if) the beach breaches to the north.

Interim Sandbar Management Plan (ISMP)
Monterey County assumed a lead role in seeking permits for a long-term solution that would avoid performing mechanical breaching for flood control purposes. The process to complete technical feasibility studies, design, environmental review, permitting, and construction is estimated to take up to eight years, depending on resource availability; however, the County is making every effort to reduce this timeframe to five years or less. In the interim, the County has developed the ISMP for managing the lagoon including winter openings and summer closure in the best possible manner that reduces potential impacts to both wildlife and property.

The Project would not create any cumulative impacts associated with these projects being considered by Monterey County.

Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE) Project

Another floodplain management project, the Carmel River FREE Project**,** has been proposed by the Big Sur Land Trust and the County of Monterey. The project consists of two interdependent Project components: the Floodplain Restoration and the Causeway. The Floodplain Restoration Component consists of: (1) remove approximately 1,470 linear feet of non-structural earthen levees on the south side of the Carmel River channel; (2) grading on approximately 103 acres to restore the site's ecological function as a floodplain by creating the hydrogeomorphic characteristics necessary to support floodplain restoration activities; (3) grading to elevate approximately 23 acres of existing farmland above the 100-year floodplain elevation to create an agricultural preserve; and (4) implementation of a Restoration Management Plan (RMP).

The project would be a mitigation for potential impacts associated with the CRFREE project on the operations of the CAWD pipelines. There would not be any cumulative adverse impacts associated with the proposed project and the CRFREE project.

c. ***Less than Significant.*** As discussed in Section VIII. Hazards and Hazardous Materials, the project would follow all laws and regulations involving the use and transport of hazardous materials and would not cause potential health risks to the public.

E. REPORT PREPARERS

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APPENDICES

Appendix A. Air Quality Calculations
Appendix B. Biological Resource Study
Appendix C. Noise Calculations
Appendix D. Tribal Cultural Resources Outreach Letters
Appendix E. Mitigation Monitoring and Reporting Program (to be included in Final IS/MND)

Appendix A. Air Quality Calculations

Appendix A

Air Quality and Greenhouse Gases Appendix

Sacramento Metropolitan Air Quality Management District Road Construction Emissions Model Version 9.0.0

Data Input and Emissions Output

Road Construction Emissions Model, Version 9.0.0

Daily Emission Estimates for -> CRFREE

Project Phases (Pounds)	ROG (lbs/day)	CO (lbs/day)	NOx (lbs/day)	Total PM10 (lbs/day)	Exhaust PM10 (lbs/day)	Fugitive Dust PM10 (lbs/day)	Total PM2.5 (lbs/day)	Exhaust PM2.5 (lbs/day)	Fugitive Dust PM2.5 (lbs/day)	SOx (lbs/day)	CO2 (lbs/day)	CH4 (lbs/day)	N2O (lbs/day)	CO2e (lbs/day)
Grubbing/Land Clearing	0.70	13.42	7.97	10.54	0.54	10.00	2.44	0.36	2.08	0.04	3,880.34	0.43	0.23	3,959.32
Grading/Excavation	2.86	30.69	26.70	11.44	1.44	10.00	3.30	1.22	2.08	0.08	8,294.51	1.43	0.27	8,409.73
Drainage/Utilities/Sub-Grade	2.69	27.83	26.10	11.43	1.43	10.00	3.27	1.19	2.08	0.07	7,365.09	1.34	0.26	7,475.89
Paving	1.57	15.92	15.99	0.84	0.84	0.00	0.63	0.63	0.00	0.06	5,552.59	0.97	0.24	5,649.58
Maximum (pounds/day)	2.86	30.69	26.70	11.44	1.44	10.00	3.30	1.22	2.08	0.08	8,294.51	1.43	0.27	8,409.73
Total (tons/construction project)	0.17	1.93	1.69	0.75	0.09	0.66	0.21	0.07	0.14	0.01	552.04	0.09	0.02	560.88

Notes:

Project Start Year ->	2022
Project Length (months) ->	8
Total Project Area (acres) ->	2
Maximum Area Disturbed/Day (acres) ->	1
Water Truck Used? ->	Yes

	Total Material Imported/Exported Volume (yd^3/day)		Daily VMT (miles/day)			
Phase	Soil	Asphalt	Soil Hauling	Asphalt Hauling	Worker Commute	Water Truck
Grubbing/Land Clearing	0	0	300	0	2,000	5
Grading/Excavation	0	0	300	0	2,000	5
Drainage/Utilities/Sub-Grade	0	0	300	0	2,000	5
Paving	0	0	300	0	2,000	5

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

Total Emission Estimates by Phase for -> CRFREE

Project Phases (Tons for all except CO2e. Metric tonnes for CO2e)	ROG (tons/phase)	CO (tons/phase)	NOx (tons/phase)	Total PM10 (tons/phase)	Exhaust PM10 (tons/phase)	Fugitive Dust PM10 (tons/phase)	Total PM2.5 (tons/phase)	Exhaust PM2.5 (tons/phase)	Fugitive Dust PM2.5 (tons/phase)	SOx (tons/phase)	CO2 (tons/phase)	CH4 (tons/phase)	N2O (tons/phase)	CO2e (MT/phase)
Grubbing/Land Clearing	0.02	0.30	0.18	0.23	0.01	0.22	0.05	0.01	0.05	0.00	85.37	0.01	0.01	79.02
Grading/Excavation	0.06	0.68	0.59	0.25	0.03	0.22	0.07	0.03	0.05	0.00	182.48	0.03	0.01	167.84
Drainage/Utilities/Sub-Grade	0.06	0.61	0.57	0.25	0.03	0.22	0.07	0.03	0.05	0.00	162.03	0.03	0.01	149.21
Paving	0.03	0.35	0.35	0.02	0.02	0.00	0.01	0.01	0.00	0.00	122.16	0.02	0.01	112.76
Maximum (tons/phase)	0.06	0.68	0.59	0.25	0.03	0.22	0.07	0.03	0.05	0.00	182.48	0.03	0.01	167.84
Total (tons/construction project)	0.17	1.93	1.69	0.75	0.09	0.66	0.21	0.07	0.14	0.01	552.04	0.09	0.02	508.83

PM10 and PM2.5 estimates assume 50% control of fugitive dust from watering and associated dust control measures if a minimum number of water trucks are specified.

Total PM10 emissions shown in column F are the sum of exhaust and fugitive dust emissions shown in columns G and H. Total PM2.5 emissions shown in Column I are the sum of exhaust and fugitive dust emissions shown in columns J and K.

CO2e emissions are estimated by multiplying mass emissions for each GHG by its global warming potential (GWP), 1 , 25 and 298 for CO2, CH4 and N2O, respectively. Total CO2e is then estimated by summing CO2e estimates over all GHGs.

The CO2e emissions are reported as metric tons per phase.

Road Construction Emissions Model **Version 9.0.0**

Data Entry Worksheet

Note: Required data input sections have a yellow background.
Optional data input sections have a blue background. Only areas with a yellow or blue background can be modified. Program defaults have a white background.
The user is required to enter information in cells D10 through D24, E28 through G35, and D38 through D41 for all project types.
Please use "Clear Data Input & User Overrides" button first before changing the Project Type or begin a new project.

To begin a new project, click this button to clear data previously entered. This button will only work if you opted not to disable macros when loading this spreadsheet.

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

Input Type

Project Name	CRFREE	
Construction Start Year	2022	Enter a Year between 2014 and 2040 (inclusive)
Project Type For 4: Other Linear Project Type, please provide project specific off-road equipment population and vehicle trip data	4	1) New Road Construction : Project to build a roadway from bare ground, which generally requires more site preparation than widening an existing roadway 2) Road Widening : Project to add a new lane to an existing roadway 3) Bridge/Overpass Construction : Project to build an elevated roadway, which generally requires some different equipment than a new roadway, such as a crane 4) Other Linear Project Type: Non-roadway project such as a pipeline, transmission line, or levee construction
Project Construction Time	8.00	months
Working Days per Month	22.00	days (assume 22 if unknown)
Predominant Soil/Site Type: Enter 1, 2, or 3 (for project within "Sacramento County", follow soil type selection instructions in cells E18 to E20 otherwise see instructions provided in cells J18 to J22)	1	1) Sand Gravel : Use for quaternary deposits (Delta/West County) 2) Weathered Rock-Earth : Use for Laguna formation (Jackson Highway area) or the Ione formation (Scott Road, Rancho Murieta) 3) Blasted Rock : Use for Salt Springs Slate or Copper Hill Volcanics (Folsom South of Highway 50, Rancho Murieta)
Project Length	0.20	miles
Total Project Area	2.00	acres
Maximum Area Disturbed/Day	1.00	acre
Water Trucks Used?	1	1. Yes 2. No

Please note that the soil type instructions provided in cells E18 to E20 are specific to Sacramento County. Maps available from the California Geologic Survey (see weblink below) can be used to determine soil type outside Sacramento County.

http://www.conservation.ca.gov/cgs/information/geologic_mapping/Pages/googlemaps.aspx#regionalseries

Material Hauling Quantity Input

Material Type	Phase	Haul Truck Capacity (yd^3) (assume 20 if unknown)	Import Volume (yd^3/day)	Export Volume (yd^3/day)
Soil	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			
Asphalt	Grubbing/Land Clearing			
	Grading/Excavation			
	Drainage/Utilities/Sub-Grade			
	Paving			

Mitigation Options

On-road Fleet Emissions Mitigation		Select "2010 and Newer On-road Vehicles Fleet" option when the on-road heavy-duty truck fleet for the project will be limited to vehicles of model year 2010 or newer
Off-road Equipment Emissions Mitigation		Select "20% NOx and 45% Exhaust PM reduction" option if the project will be required to use a lower emitting off-road construction fleet. The SMAQMD Construction Mitigation Calculator can be used to confirm compliance with this mitigation measure (http://www.airquality.org/Businesses/CEQA-Land-Use-Planning/Mitigation). Select "Tier 4 Equipment" option if some or all off-road equipment used for the project meets CARB Tier 4 Standard

The remaining sections of this sheet contain areas that require modification when 'Other Project Type' is selected.

Note: The program's estimates of construction period phase length can be overridden in cells D50 through D53, and F50 through F53.

Construction Periods	User Override of Construction Months	Program Calculated Months	User Override of Phase Starting Date	Program Default Phase Starting Date
Grubbing/Land Clearing	2.00	0.80		1/1/2022
Grading/Excavation	2.00	3.20		3/3/2022
Drainage/Utilities/Sub-Grade	2.00	2.80		5/3/2022
Paving	2.00	1.20		7/3/2022
Totals (Months)		8		

Note: Soil Hauling emission default values can be overridden in cells D61 through D64, and F61 through F64.

Soil Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing	100.00		3	0	300.00
Miles/round trip: Grading/Excavation	100.00		3	0	300.00
Miles/round trip: Drainage/Utilities/Sub-Grade	100.00		3	0	300.00
Miles/round trip: Paving	100.00		3	0	300.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Grading/Excavation (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Paving (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Hauling Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.03	0.28	2.06	0.07	0.03	0.01	1,156.48	0.00	0.18	1,210.68
Tons per const. Period - Grubbing/Land Clearing	0.00	0.01	0.05	0.00	0.00	0.00	25.44	0.00	0.00	26.64
Pounds per day - Grading/Excavation	0.03	0.28	2.06	0.07	0.03	0.01	1,156.48	0.00	0.18	1,210.68
Tons per const. Period - Grading/Excavation	0.00	0.01	0.05	0.00	0.00	0.00	25.44	0.00	0.00	26.64
Pounds per day - Drainage/Utilities/Sub-Grade	0.03	0.28	2.06	0.07	0.03	0.01	1,156.48	0.00	0.18	1,210.68
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.01	0.05	0.00	0.00	0.00	25.44	0.00	0.00	26.64
Pounds per day - Paving	0.03	0.28	2.06	0.07	0.03	0.01	1,156.48	0.00	0.18	1,210.68
Tons per const. Period - Paving	0.00	0.01	0.05	0.00	0.00	0.00	25.44	0.00	0.00	26.64
Total tons per construction project	0.00	0.02	0.18	0.01	0.00	0.00	101.77	0.00	0.02	106.54

Note: Asphalt Hauling emission default values can be overridden in cells D91 through D94, and F91 through F94.

Asphalt Hauling Emissions User Input	User Override of Miles/Round Trip	Program Estimate of Miles/Round Trip	User Override of Truck Round Trips/Day	Default Values Round Trips/Day	Calculated Daily VMT
Miles/round trip: Grubbing/Land Clearing				0	0.00
Miles/round trip: Grading/Excavation				0	0.00
Miles/round trip: Drainage/Utilities/Sub-Grade				0	0.00
Miles/round trip: Paving				0	0.00

Emission Rates	ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Grading/Excavation (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Paving (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Pounds per day - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: Worker commute default values can be overridden in cells D121 through D126.

Worker Commute Emissions	User Override of Worker			
User Input	Commute Default Values	Default Values		
Miles/ one-way trip	100		Calculated	Calculated
One-way trips/day	2		Daily Trips	Daily VMT
No. of employees: Grubbing/Land Clearing	10		20	2,000.00
No. of employees: Grading/Excavation	10		20	2,000.00
No. of employees: Drainage/Utilities/Sub-Grade	10		20	2,000.00
No. of employees: Paving	10		20	2,000.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.02	1.00	0.08	0.05	0.02	0.00	328.72	0.00	0.01	330.96
Grading/Excavation (grams/mile)	0.02	1.00	0.08	0.05	0.02	0.00	328.72	0.00	0.01	330.96
Draining/Utilities/Sub-Grade (grams/mile)	0.02	1.00	0.08	0.05	0.02	0.00	328.72	0.00	0.01	330.96
Paving (grams/mile)	0.02	1.00	0.08	0.05	0.02	0.00	328.72	0.00	0.01	330.96
Grubbing/Land Clearing (grams/trip)	1.11	2.85	0.32	0.00	0.00	0.00	70.54	0.08	0.03	82.43
Grading/Excavation (grams/trip)	1.11	2.85	0.32	0.00	0.00	0.00	70.54	0.08	0.03	82.43
Draining/Utilities/Sub-Grade (grams/trip)	1.11	2.85	0.32	0.00	0.00	0.00	70.54	0.08	0.03	82.43
Paving (grams/trip)	1.11	2.85	0.32	0.00	0.00	0.00	70.54	0.08	0.03	82.43
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.13	4.54	0.38	0.20	0.08	0.01	1,452.52	0.02	0.03	1,462.91
Tons per const. Period - Grubbing/Land Clearing	0.00	0.10	0.01	0.00	0.00	0.00	31.96	0.00	0.00	32.18
Pounds per day - Grading/Excavation	0.13	4.54	0.38	0.20	0.08	0.01	1,452.52	0.02	0.03	1,462.91
Tons per const. Period - Grading/Excavation	0.00	0.10	0.01	0.00	0.00	0.00	31.96	0.00	0.00	32.18
Pounds per day - Drainage/Utilities/Sub-Grade	0.13	4.54	0.38	0.20	0.08	0.01	1,452.52	0.02	0.03	1,462.91
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.10	0.01	0.00	0.00	0.00	31.96	0.00	0.00	32.18
Pounds per day - Paving	0.13	4.54	0.38	0.20	0.08	0.01	1,452.52	0.02	0.03	1,462.91
Tons per const. Period - Paving	0.00	0.10	0.01	0.00	0.00	0.00	31.96	0.00	0.00	32.18
Total tons per construction project	0.01	0.40	0.03	0.02	0.01	0.00	127.82	0.00	0.00	128.74

Note: Water Truck default values can be overridden in cells D153 through D156, I153 through I156, and F153 through F156.

Water Truck Emissions	User Override of	Program Estimate of	User Override of Truck	Default Values	Calculated	User Override of	Default Values	Calculated
User Input	Default # Water Trucks	Number of Water Trucks	Round Trips/Vehicle/Day	Round Trips/Vehicle/Day	Trips/day	Miles/Round Trip	Miles/Round Trip	Daily VMT
Grubbing/Land Clearing - Exhaust	1		1.00			5.00		5.00
Grading/Excavation - Exhaust	1		1.00			5.00		5.00
Drainage/Utilities/Subgrade	1		1.00			5.00		5.00
Paving	1		1.00			5.00		5.00

Emission Rates	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Grubbing/Land Clearing (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Grading/Excavation (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Draining/Utilities/Sub-Grade (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Paving (grams/mile)	0.04	0.42	3.08	0.11	0.05	0.02	1,748.57	0.00	0.27	1,830.52
Grubbing/Land Clearing (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grading/Excavation (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Draining/Utilities/Sub-Grade (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving (grams/trip)	0.00	0.00	3.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emissions	**ROG**	**CO**	**NOx**	**PM10**	**PM2.5**	**SOx**	**CO2**	**CH4**	**N2O**	**CO2e**
Pounds per day - Grubbing/Land Clearing	0.00	0.00	0.04	0.00	0.00	0.00	19.27	0.00	0.00	20.18
Tons per const. Period - Grubbing/Land Clearing	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.44
Pounds per day - Grading/Excavation	0.00	0.00	0.04	0.00	0.00	0.00	19.27	0.00	0.00	20.18
Tons per const. Period - Grading/Excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.44
Pounds per day - Drainage/Utilities/Sub-Grade	0.00	0.00	0.04	0.00	0.00	0.00	19.27	0.00	0.00	20.18
Tons per const. Period - Drainage/Utilities/Sub-Grade	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.44
Pounds per day - Paving	0.00	0.00	0.04	0.00	0.00	0.00	19.27	0.00	0.00	20.18
Tons per const. Period - Paving	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00	0.44
Total tons per construction project	0.00	0.00	0.00	0.00	0.00	0.00	1.70	0.00	0.00	1.78

Note: Fugitive dust default values can be overridden in cells D183 through D185.

Fugitive Dust	User Override of Max Acreage Disturbed/Day	Default Maximum Acreage/Day	PM10 pounds/day	PM10 tons/per period	PM2.5 pounds/day	PM2.5 tons/per period
Fugitive Dust - Grubbing/Land Clearing	1.00		10.00	0.22	2.08	0.05
Fugitive Dust - Grading/Excavation	1.00		10.00	0.22	2.08	0.05
Fugitive Dust - Drainage/Utilities/Subgrade	1.00		10.00	0.22	2.08	0.05

Values in cells D195 through D228, D246 through D279, D297 through D330, and D348 through D381 are required when 'Other Project Type' is selected.

Off-Road Equipment Emissions

Grubbing/Land Clearing	Default Number of Vehicles	Mitigation Option Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Override of Default Number of Vehicles	*Program-estimate*	Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Equipment Tier	Type	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.25	4.07	2.22	0.11	0.10	0.01	625.02	0.20	0.01	631.76
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Trucks	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Skid Steer Loaders	0.09	1.73	1.16	0.04	0.04	0.00	250.49	0.08	0.00	253.19
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.21	2.80	2.09	0.11	0.10	0.00	376.55	0.12	0.00	380.60
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grubbing/Land Clearing	pounds per day	0.55	8.60	5.48	0.26	0.24	0.01	1,252.06	0.40	0.01	1,265.55
Grubbing/Land Clearing	tons per phase	0.01	0.19	0.12	0.01	0.01	0.00	27.55	0.01	0.00	27.84

Grading/Excavation Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Bore/Drill Rigs	0.28	2.55	2.83	0.09	0.08	0.01	1,141.95	0.37	0.01	1,154.29
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cranes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.41	4.59	3.66	0.18	0.18	0.01	778.79	0.04	0.01	781.46
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.66	4.20	5.02	0.18	0.17	0.02	1,598.73	0.52	0.01	1,615.95
1.00			Model Default Tier	Other Construction Equipment	0.47	5.03	4.77	0.25	0.23	0.01	747.91	0.24	0.01	755.99
2.00			Model Default Tier	Other General Industrial Equipm	0.45	4.84	4.22	0.26	0.24	0.01	620.05	0.20	0.01	626.74
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Pumps	0.44	4.66	3.71	0.19	0.19	0.01	778.79	0.04	0.01	781.53
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Skid Steer Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Tractors/Loaders/Backhoes	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Grading/Excavation	pounds per day	2.71	25.87	24.21	1.16	1.10	0.06	5,666.23	1.41	0.05	5,715.96
Grading/Excavation	tons per phase	0.06	0.57	0.53	0.03	0.02	0.00	124.66	0.03	0.00	125.75

Drainage/Utilities/Subgrade	Default	Mitigation Option												
	Number of Vehicles	Override of	Default		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
		Default Equipment Tier (applicable only												
Override of Default Number of Vehicles	*Program-estimate*	when "Tier 4 Mitigation" Option Selected)	Equipment Tier		pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Cranes	0.47	2.37	5.23	0.22	0.20	0.01	698.54	0.23	0.01	706.07
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Excavators	0.25	4.07	2.22	0.11	0.10	0.01	625.02	0.20	0.01	631.76
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Generator Sets	0.41	4.59	3.66	0.18	0.18	0.01	778.79	0.04	0.01	781.46
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.66	4.20	5.02	0.18	0.17	0.02	1,598.73	0.52	0.01	1,615.95
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Skid Steer Loaders	0.09	1.73	1.16	0.04	0.04	0.00	250.49	0.08	0.00	253.19
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.21	2.80	2.09	0.11	0.10	0.00	376.55	0.12	0.00	380.60
1.00			Model Default Tier	Trenchers	0.45	3.25	4.22	0.30	0.28	0.00	408.69	0.13	0.00	413.09
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
				pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day	pounds/day
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Drainage/Utilities/Sub-Grade	pounds per day	2.54	23.01	23.61	1.15	1.07	0.05	4,736.81	1.32	0.04	4,782.11
Drainage/Utilities/Sub-Grade	tons per phase	0.06	0.51	0.52	0.03	0.02	0.00	104.21	0.03	0.00	105.21

Paving Override of Default Number of Vehicles	Default Number of Vehicles *Program-estimate*	Mitigation Option Override of Default Equipment Tier (applicable only when "Tier 4 Mitigation" Option Selected)	Default Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
			Model Default Tier	Aerial Lifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Air Compressors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Bore/Drill Rigs	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Cement and Mortar Mixers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Concrete/Industrial Saws	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Cranes	0.47	2.37	5.23	0.22	0.20	0.01	698.54	0.23	0.01	706.07
			Model Default Tier	Crawler Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Crushing/Proc. Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Excavators	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Generator Sets	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Graders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Off-Highway Tractors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Off-Highway Trucks	0.66	4.20	5.02	0.18	0.17	0.02	1,598.73	0.52	0.01	1,615.95
			Model Default Tier	Other Construction Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other General Industrial Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Other Material Handling Equipm	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pavers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Paving Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Plate Compactors	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pressure Washers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Pumps	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rollers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rough Terrain Forklifts	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Dozers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Rubber Tired Loaders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Scrapers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Signal Boards	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Skid Steer Loaders	0.09	1.73	1.16	0.04	0.04	0.00	250.49	0.08	0.00	253.19
			Model Default Tier	Surfacing Equipment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Sweepers/Scrubbers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1.00			Model Default Tier	Tractors/Loaders/Backhoes	0.21	2.80	2.09	0.11	0.10	0.00	376.55	0.12	0.00	380.60
			Model Default Tier	Trenchers	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
			Model Default Tier	Welders	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

User-Defined Off-road Equipment — If non-default vehicles are used, please provide information in 'Non-default Off-road Equipment' tab

Number of Vehicles	Equipment Tier	Type	ROG pounds/day	CO pounds/day	NOx pounds/day	PM10 pounds/day	PM2.5 pounds/day	SOx pounds/day	CO2 pounds/day	CH4 pounds/day	N2O pounds/day	CO2e pounds/day
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
0.00	N/A	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

		ROG	CO	NOx	PM10	PM2.5	SOx	CO2	CH4	N2O	CO2e
Paving	pounds per day	1.42	11.10	13.50	0.56	0.51	0.03	2,924.31	0.95	0.03	2,955.81
Paving	tons per phase	0.03	0.24	0.30	0.01	0.01	0.00	64.33	0.02	0.00	65.03
Total Emissions all Phases (tons per construction period) =>		0.16	1.51	1.47	0.07	0.06	0.00	320.75	0.09	0.00	323.83

Equipment default values for horsepower and hours/day can be overridden in cells D403 through D436 and F403 through F436.

Equipment	User Override of Horsepower	Default Values Horsepower	User Override of Hours/day	Default Values Hours/day
Aerial Lifts		63	10.00	8
Air Compressors		78	10.00	8
Bore/Drill Rigs		221	10.00	8
Cement and Mortar Mixers		9	10.00	8
Concrete/Industrial Saws		81	10.00	8
Cranes		231	10.00	8
Crawler Tractors		212	10.00	8
Crushing/Proc. Equipment		85	10.00	8
Excavators		158	10.00	8
Forklifts		89	10.00	8
Generator Sets		84	10.00	8
Graders		187	10.00	8
Off-Highway Tractors		124	10.00	8
Off-Highway Trucks		402	10.00	8
Other Construction Equipment		172	10.00	8
Other General Industrial Equipment		88	10.00	8
Other Material Handling Equipment		168	10.00	8
Pavers		130	10.00	8
Paving Equipment		132	10.00	8
Plate Compactors		8	10.00	8
Pressure Washers		13	10.00	8
Pumps		84	10.00	8
Rollers		80	10.00	8
Rough Terrain Forklifts		100	10.00	8
Rubber Tired Dozers		247	10.00	8
Rubber Tired Loaders		203	10.00	8
Scrapers		367	10.00	8
Signal Boards		6	10.00	8
Skid Steer Loaders		65	10.00	8
Surfacing Equipment		263	10.00	8
Sweepers/Scrubbers		64	10.00	8
Tractors/Loaders/Backhoes		97	10.00	8
Trenchers		78	10.00	8
Welders		46	10.00	8

END OF DATA ENTRY SHEET

CRFREE Energy Consumption Calculations

Fuel Sources	metric tons of CO2e
Gasoline	129
Diesel	380
Total	**509**

Gasoline	8.9 kg/CO2/gal		https://www.eia.gov/environment/emissions/co2_vol_mass.php
		14,465	gallons of gasoline
Diesel	10.16 kg/CO2/gal		https://www.eia.gov/environment/emissions/co2_vol_mass.php
		37,410	gallons of diesel

Appendix B. Biological Resource Study

BIOLOGICAL RESOURCE ANALYSIS

Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE) Mitigation Pipeline Undergrounding Project

Monterey County, California

March 2021

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CONSULTING, LLC

Biological Resource Analysis

Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE) Mitigation Pipeline Undergrounding Project

Contents

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LIST OF ABBREVIATED TERMS

AMM	Avoidance and Minimization Measures
ASBS	Areas of Special Biological Significance
BMP	Best Management Practice
Caltrans	California Department of Transportation
CAWD	Carmel Area Wastewater District
CCC	California Coastal Commission
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CRFREE	Carmel River Floodplain Restoration and Environmental Enhancement
CRLF	California red-legged frog (*Rana draytonii*)
CWA	Clean Water Act
CZMA	Coastal Zone Management Act
DPS	Distinct Population Segment
EFH	Essential Fish Habitat
FESA	Federal Endangered Species Act
FMP	Fisheries Management Plan
GNSS	Global Navigation Satellite System
HAPC	Habitat Areas of Particular Concern
HDD	Horizontal Directional Drilling
IHA	Incidental Harassment Authorization
IPaC	Information for Planning and Consultation tool
IS	Initial Study
ITP	Incidental Take Permit
JMC	Johnson Marigot Consulting, LLC
LCP	Local Coastal Program
MBTA	Migratory Bird Treaty Act
MHHW	Mean Higher High Water
MMPA	Marine Mammal Protection Act
MPA	McAteer-Petris Act
MS4	Municipal Separate Storm Sewer Systems
MSA	Magnuson-Stevens Fishery Conservation and Management Act
NAVD 88	North American Vertical Datum of 1988
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
NOAA	National Oceanic and Atmospheric Administration
Quad	Quadrangle
RHA	Rivers and Harbors Act
RWQCB	Regional Water Quality Control Board
SWPPP	Storm Water Pollution Prevention Plan

SWRCB	California State Water Resources Control Board
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WDR	Waste Discharge Requirements
WOTUS	Waters of the United States/State

SECTION 1. INTRODUCTION

1.1 PURPOSE OF THE DOCUMENT

The Carmel Area Wastewater District (CAWD) is completing an Initial Study (IS) for the proposed Carmel River Floodplain Restoration and Environmental Enhancement (CRFREE) Mitigation Pipeline Undergrounding Project (proposed project), in accordance with the requirements of the California Environmental Quality Act (CEQA) (California Public Resources Code, Division 13, Section 2100 et seq.) and CEQA Guidelines (Title 14, California Code of Regulations, Chapter 3, Section 15000 et seq.).

The purpose of this Biological Resource Analysis is to gather information necessary to complete a review of biological resources under CEQA and to support the regulatory permit application process. The analysis herein considers the proposed project location in conjunction with proposed work activities to analyze potential project-related impacts to the natural environment. This analysis has been prepared to provide a description of biological resources existing on the project site and to identify potentially significant impacts that could be incurred by these biological resources from the construction of the proposed project. In this assessment, biological resources include both common and rare plant and animal species, as designated by the United States Fish and Wildlife Service (USFWS), the California Department of Fish and Wildlife (CDFW), National Marine Fisheries Service (NMFS), and the scientific community which includes organizations such as the California Native Plant Society (CNPS) (Appendix A, Tables 1 and 2); as well as waters of the United States and the State of California, regulated under the jurisdiction of the United States Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and/or CDFW.

1.2 PROJECT LOCATION

The approximately 18-acre project site is located within the south arm of the Carmel River Lagoon north of Calle La Cruz, within unincorporated Carmel, Monterey County, California (36.535210° west, 121.925177° north) (Figure 1) within the Monterey U.S. Geological Survey (USGS) 7.5-minute quadrangle (quad) (Township 16S, Range 01W). The project site is located within the western extent of the Carmel River Watershed, within the Lower Carmel River Lagoon local watershed (12-Digit HUC Code: 180600060106). The project site borders the Carmel River, which drains approximately 246 square miles of the Santa Lucia and Sierra de Salinas Mountains into the Carmel Bay.

The project site is bordered by the CAWD Treatment Plant to the northeast, the Carmel River to the northwest, and the Carmel River Lagoon and residential development (Carmel Meadows) to the south, and the Pacific Ocean to the west. The Carmel Meadows pump station is within the western portion of the project site, directly west of the lagoon (Figure 2). The project site is partially within the Carmel River State Beach, owned and operated by State Parks, and the California Department of Transportation (Caltrans) Carmel River Mitigation Bank. The greater area surrounding the project site is dominated by medium-density residential development to the north (Carmel-By-The-Sea) and undeveloped land to the east.

The site is defined to include the work areas, access roads/trails, work areas, and staging areas (Figures 3a-c). CAWD's existing pipeline easement/footprint runs from east to west through the approximate center of the project site (Figure 4). The northeastern portion of the site bounds an

unpaved maintenance road that follows the 20-foot-wide pipeline footprint; this road provides access to the eastern bank of the lagoon. The lagoon crossing pipeline structure is at the approximate center of the site (Figure 4). The southwestern portion of the site consists of several maintenance roads and pedestrian trails that provide access to the western bank of the lagoon. The maintenance roads and pedestrian trails would also be used to stage construction materials at specified locations. Work areas would be established on the east and west sides of the lagoon; an in-water work area would be established in the lagoon to facilitate dismantling activities (Appendix B. Site Photos).

1.3 PROJECT SITE HISTORY

The project site and surrounding land has a history dominated by agriculture, having been subjected to cultivation since the late 1700s, when the area was converted from riparian forest and wetlands to agricultural land. In the 1920s, the Odello family acquired the land and grew artichokes on it for the next 75 years. In 1994, the land was acquired by State Parks and incorporated into what became the 300-acre Carmel River Lagoon and Wetlands Natural Preserve. In 1996, Caltrans and California State Parks (State Parks) began restoration work to restore the lagoon through conversion of the agricultural lands back to wetlands and riparian forest. In 2004, State Parks implemented the Carmel River Lagoon Enhancement Project to recreate the southern arm of the lagoon and the adjacent habitat. Restoration work included lowering the elevation of the western portion of the existing CAWD access road (which is within the project site) to the meet/match elevation of the surrounding flood plain.

1.4 PROJECT PURPOSE AND NEED

The purpose of the proposed project is to replace existing wastewater pipelines that currently span the south arm of the Carmel River Lagoon with new pipelines installed deep below the bed of the lagoon so that they would not be subject to damage by increased river flows in the south arm created by the CRFREE project.

SECTION 2. PROPOSED PROJECT

CAWD proposes to install an approximately 1,000-foot segment of two parallel wastewater pipelines under the Carmel River Lagoon using horizontal directional drilling (HDD). The new pipes would replace the pipes that currently span the lagoon. The existing 6-inch raw sewage force main and 24-inch treated wastewater pipelines proposed for replacement include sections of undergrounded pipe on either side of the lagoon, as well as an approximately 150-foot pile-supported section that spans the lagoon (Figure 4). To achieve inside diameters for the new pipes that are equivalent to the existing pipes, the new HDPE pipe nominal diameters would be 8-inch and 28-inch.

HDD entry and exit locations would occur within upland locations within the existing pipeline easement/footprint however the newly installed pipelines would require a straight path between entry and exit points, and as such, the new pipelines would occur primarily outside of the existing pipeline easement/footprint which is not straight enough to facilitate HDD (Figure 4). HDD methods described in detail below would be used to drill a new pipeline alignment between the entry and exit points. Once the new pipelines are installed, limited trenching within upland locations on the east and west side of the lagoon would be necessary to tie the new pipelines into the existing pipelines. Once the new pipelines are installed and tied in, the existing above ground pipelines spanning the lagoon and associated support piles would be removed. Undergrounded segments of the existing pipelines that would be bypassed by the new pipelines would be abandoned in-place.

To facilitate construction access and staging, portions of existing access roads and adjacent upland areas on the east and west sides of the lagoon would need to be cleared and grubbed, stabilized, and widened to accommodate vehicular access, equipment and material storage, and pipeline lay-down. Construction work areas large enough to accommodate vehicular and construction equipment access would be established around the drilling locations and the pipeline removal area. Areas of direct ground disturbance within the drilling and pipeline removal work areas would be clearly delineated, and cleared and grubbed prior to commencement of ground moving activities.

A detailed description of site preparation, HDD methods, pipeline removal methods, post construction activities, and construction equipment and schedule are provided in the following sections.

2.1 CONSTRUCTION

2.1.1 Site Preparation

To facilitate construction, staging areas and work areas would be established within the project site and access roads would be cleared and stabilized, as necessary. Figures 3a – 3c provide a layout of the staging areas, work areas, and access roads described below.

Staging Areas: Staging areas would be needed to store pipe, construction equipment, and other construction-related materials and support equipment. The proposed project would include three staging areas: one east of the lagoon, one west of the lagoon, and one at the existing CAWD Wastewater Treatment Plant. The staging area on the east side of the lagoon would be located directly south of CAWD's entrance gate on a gravel pull-out adjacent to the plant entry road (Figure 3b). On the west side of the lagoon, a 320-foot portion of CAWD's Carmel Meadows maintenance road would be used as a staging area for construction vehicles, materials and support equipment (Figure 3c).

Additionally, approximately 1,000 feet of linear staging on existing access roads and trails within the project site would be utilized for the pipeline layout during pullback. All staging areas would be located on or adjacent to existing paved or unpaved roads.

Work Areas: All construction activities would be confined to three work areas within the larger project site. A summary of work area features is provided in Table 1 and the locations of these staging areas are shown in Figures 3a – 3c. Construction work areas include: two approximately 0.3-acre HDD drilling/pull-back/tie-in areas and one approximately 0.3-acre pipeline removal area. The HDD work areas are located on the east and west sides of the lagoon (Eastern HDD work area and Western HDD work area) and the pipeline removal work area is within and adjacent to the lagoon. The pipeline removal work area includes the maintenance road and pedestrian trail adjacent to the Carmel Meadows Pump Station to support removal of the existing pipelines that currently span the Carmel River Lagoon.

All vegetation within each of the 0.3-acre HDD work areas would need to be removed to clear an area large enough to accommodate HDD construction activities and associated equipment. The vegetation in the Western HDD work area is dominated by ice plant (*Carpobrotus edulis*) with patches of coastal scrub, and the vegetation in the Eastern HDD work area is dominated by willows (*Salix* spp.). An 800 square-foot area would be cleared of vegetation adjacent to the Carmel Meadows Pump Station to accommodate raw sewage force main tie-in to the existing Carmel Meadows Pump Station. The vegetation in the pipeline removal work area is primarily poison oak (*Toxicodendron diversilobum*).

Limited ground disturbance would be necessary in each work area for underground work. This ground disturbance would be confined to specific areas within the larger work area. Within the HDD work areas, ground disturbance would include drilling entry and exit pits and trenching to tie-in the new pipelines to existing pipelines. The area adjacent to the Carmel Meadows Pump Station would also include trenching for a raw sewage force main tie-in in uplands adjacent to the Carmel Meadows Pump Station. The ground disturbance areas would encompass approximately 1,000 square feet within each of the HDD work areas and approximately 800 square feet adjacent to the Carmel Meadows Pump Station.

The upland portion of the pipeline removal work area includes the maintenance road area directly west of the Carmel Meadows Pump Station, which would be utilized to support removal of the existing pipelines and support piles that currently span the Carmel River Lagoon. A crane would likely be parked at this location on the existing maintenance road for use in removing segments of the existing pipelines and support piles crossing the lagoon. The equipment and personnel associated with in-water pipeline dismantling activities (e.g., small watercraft, divers) would also utilize this area as a launching point for in water work.

Table 1. Work Area Features

Work Area	Components	Approximate Area & Volume
Eastern HDD Work Area	Work Area & Vegetation Removal Area	0.3 ac 13,068 sq ft
	Ground Disturbance Area *Includes Drill Pit and Tie-In Trench*	1,000 sq ft 3,600 cu ft
Western HDD Work Area	Work Area & Vegetation Removal Area	0.3 ac 13,068 sq ft
	Ground Disturbance Area *Includes Drill Pit and Tie-In Trench*	1,000 sq ft 3,600 cu ft
Pipeline Removal Area	Work Area	0.3 ac 13,068 sq ft
	Vegetation Removal & Ground Disturbance Area *Includes Trenching*	800 sq ft 1,800 cu ft

Site Access: The work areas on the east side of the lagoon would be accessed from the CAWD Wastewater Treatment Plant via an existing unpaved maintenance road that corresponds with CAWD's 20-foot easement for the existing underground pipelines. The segment of this road that extends from the CAWD Wastewater Treatment Plant to the western extent of the Eastern HDD work area would be used for motorized vehicular access and pipe lay-down. The segment of this road that extends from the western extent of the Eastern HDD work area to the eastern shore of the lagoon would be restricted for pedestrian use only.

The staging areas and work areas on the west side of the lagoon would be accessed from Calle La Cruz via an existing paved maintenance road (Figure 3c). A network of unpaved access roads extends from this maintenance road, including several loops of the Carmel Meadows trail network to the north and west; a pedestrian trail to CAWD's Carmel Meadows Pump Station to the east; and CAWD's Carmel Meadows maintenance road to the southeast. Portions of the Carmel Meadows trail network totaling approximately 3,200 linear feet would be used for motorized vehicular access, pipe lay-down, and to access staging areas and work areas. The foot trail from the paved maintenance road to the pipes crossing over the lagoon would be used for pedestrian access to the west side of the lagoon and for material transport during pipeline dismantling activities.

Vegetation would need to be trimmed and/or cleared along portions of access roads. On the eastern side of the lagoon, overgrown vegetation on the maintenance road and pedestrian trail would be trimmed, as needed, to maintain a road width of at least 12 feet for vehicular access and a trail width of 6-feet for pedestrian access. On the west side of the lagoon, vegetation would be removed along the foot trail to CAWD's pump station to widen the trail to 6 feet.

2.1.2 HDD and Pipeline Placement

HDD is a steerable, trenchless method of installing underground pipelines along a prescribed bore path by using a surface drilling rig. HDD causes minimal impacts compared to open trench methods, and ground disturbance occurs only in the immediate vicinity of each entry/exit point. Drill pits

measuring approximately 20-foot by 20-foot by 6-foot deep are dug at the entry and exit points to contain drilling fluid and spoil returns. Drilling fluid, which typically consists of a bentonite (i.e. clay)/water mixture, is used during each HDD stage to cool the drill bit/reamer, maintain the bore hole opening, remove bore cuttings, and strengthen the walls of the bore. Drilling fluid would be stored in fixed-angle storage tanks within the HDD work areas. Used drilling fluid would be transported offsite to an appropriate upland sanitary land fill. HDD is typically conducted in four stages: drilling, casing, pre-reaming, and pull-back.

Stage 1 – Drilling: The first stage of HDD involves drilling a pilot hole using an HDD drill rig equipped with drill rods and a tri-cone drill bit. The drilling entry point may be from either the Eastern or Western HDD work area, or both. The drill path would arc under the lagoon at a maximum depth of approximately 25 feet below the lagoon's lowest elevation and would extend a total of approximately 1,000 feet. Guidance equipment provides continuous, accurate monitoring of the drill bit position to maintain the proper horizontal and vertical coordinates of the pilot hole. The drill bit is adjusted as needed to arc up and out of the ground at the pre-determined exit point.

Stage 2 – Casing: The west side of the drill path is at a significantly higher elevation than the east side (approximately 15 feet higher) which requires special consideration in terms of management of drilling fluid. The fluid in the bore hole cannot be maintained at a higher elevation than the ground surface elevation at the lower elevation east side of the bore. Therefore, for 15 feet of depth on the west side of the bore, the bore hole must be completed without drilling fluid. To drill without drilling fluid, a steel pipe casing larger than the new pipes would need to be driven into the ground to a depth of 15 feet along the pipeline alignment/profile. This would allow the pipe to be installed up to the higher elevation on the west side of the HDD.

Stage 3 – Pre-reaming: Once the pilot drill reaches the terminus point, a reamer is attached to the drill rods and pulled in reverse through the pilot hole in multiple passes to gradually enlarge the hole. A reamer is a type of rotary cutting tool designed to enlarge the size of a previously formed hole by a small amount but with a high degree of accuracy to leave smooth sides. The reaming process also compacts the walls of the borehole, which reduces the chances of voids, settlement, and fluid frac-out. The final reaming pass, called the swab pass, is made using a reamer the same size as the pipe; the swab pass helps clean the borehole of fine gravel and clay.

Stage 4 – Pullback: In the final stage the heat welded solid walled HDPE pipe with a length exceeding the bore would be pulled through the enlarged borehole behind the reamer assembly. The pipeline is pulled in reverse back to the drill rig. This process is supported by some combination of roller stands or pipe-handling equipment at the bore's exit point / pipe entry point.

The drilling/reaming/pullback described above would be done individually for each of the pipelines. Two pilot hoes would be drilled, with one hole reamed to a size to fit the new 28-inch pipe and the other hole reamed to a size to fit the new 8-inch pipe.

2.1.3 Tie-in

Trenching would be required at the HDD entry and exit points to tie in the new pipes to the existing pipes. All trenching would occur within upland locations and would not impact jurisdictional waters. In the Eastern HDD work area, an open cut trench approximately 10-foot by 20-foot by 6-foot deep would be trenched to connect the new 28-inch HDPE treated wastewater pipeline and new 8-inch HDPE raw sewage force main pipeline the existing pipelines. In the Western HDD work area, an open cut trench approximately 10-foot by 20-foot by 6-foot deep would be trenched to connect the new 28-inch HDPE treated wastewater pipeline to the existing pipeline and to route the new 8-inch HDPE force main pipe back to the pump station by slip lining through the existing 24-inch pipe.

The exit point of the new raw sewage force main on the west side of the lagoon is approximately 250 feet west of the tie in location to the existing Carmel Meadows Pump Station. The new raw sewage force main would be slip lined through the existing 24-inch treated wastewater pipeline on the west side of the lagoon (proposed to be abandoned in place) to connect the new force main to the existing pump station. An open cut trench approximately 10-foot by 30-foot by 6-foot deep would be excavated adjacent to the existing pump station to connect the new force main to the pump station. The abandoned 24-inch pipe would be filled with grout after slip lining with the new 8-inch HDPE force main pipe is completed. All trenches would be backfilled with clean aggregate and native soil.

2.1.4 Removal of Existing Outfall and Force Main

Following tie-in of the new pipelines to the existing pipelines, the 150-foot portion of existing pile-supported pipelines spanning the Carmel River Lagoon would be removed in their entirety. Pipelines would be removed from the lagoon via small watercraft within the 40-foot-wide pipeline removal area along the existing easement/footprint and up the hill to the west. Pipelines would be removed first, followed by the support piles. Pipelines would be capped-off and cut into small segments with a cutting tool (e.g., arc welder, grinder, or circular saw), lowered onto skiffs, floated to the shoreline, attached to a crane-mounted winch, and pulled up the pedestrian trail next to CAWD's Carmel Meadows Pump Station. Once the pipelines are entirely removed, divers would cut the support piles into segments down to the mudline. Pile segments would be attached to the winch and removed in the same manner as the pipeline segments.

2.1.5 Post-Construction Activities

Upon completion of construction activities, temporary fill (including all Best Management Practices [BMPs] and other protective measures) would be removed from the wetlands, pre-construction grades would be restored, and the impacted areas would be re-planted with appropriate native vegetation. Site restoration would generally involve overall clean up and installing erosion controls, as necessary. Revegetation work would be consistent with a Revegetation Plan to be submitted to and approved by appropriate agencies prior to commencement of project activities.

2.1.6 Construction Equipment and Workers

To complete construction, the proposed project would implement the use of various construction equipment including but not limited to water trucks, HDD drill rig and associated drilling a fluid handling equipment, a skid steer, excavators, cranes, casing jacking equipment, and assorted other

hand tools and equipment. Construction vehicles would only access the project site from the designated access roads. Work would be completed by five to ten construction workers at any given time during construction. Divers would be necessary for pile removal.

2.2 CONSTRUCTION SCHEDULE

Construction is planned to occur from approximately Spring of 2022 through Winter of 2022/23. It is anticipated that the total project would take a duration of approximately 8 months to complete, with 2 months of site mobilization, 2 months of HDD, 2 months for pipeline tie-in, two weeks of work directly within the lagoon, and 1½ months of demobilization. Crews would typically work from approximately 6:00 a.m. to 5:00 p.m., Monday through Friday. These dates and times are subject to change, pending issuance of project permits and agency authorizations.

Construction activities would be scheduled in a manner predicated on the presence/absence of biological and aquatic resources. These resources generally correspond with the aquatic resources and vegetation communities within the project site, which can be divided into three major sections: 1) coastal scrub on the west side of the lagoon, 2) the Carmel River Lagoon (estuarine) and 100-foot buffer, and 3) wetland and riparian east of the lagoon (Figure 5). Generally, ground disturbance work in a 100-foot buffer around the Carmel River Lagoon and wetland and riparian habitat east of the lagoon would be constrained to occur during species-appropriate work windows that generally correspond to the months when the lagoon is driest in the summer and fall. The constraints on the schedule of construction activities within each of these vegetation communities is outlined below.

2.2.1 Coastal Scrub West of the Lagoon

All construction activities in this location, which include but are not limited to, vegetation removal, excavation, trenching, and HDD, would be conducted any time of year. The coastal scrub habitat on the west side of the lagoon consists of uplands that lack aquatic resources. Although some special status species are known to occur in this this vegetation community, it is expected that with appropriate BMPs and Avoidance and Minimization Measures (AMMs) (e.g., biological monitoring during construction activities, exclusion fencing around work areas), potential adverse effects can be avoided.

2.2.2 The Carmel River Lagoon and 100-foot Buffer

CAWD intends to conduct pipeline removal activities in this location year-round. Ground disturbance work within a 100-foot buffer directly east and west of the Lagoon would be restricted to the June 15th to October 31st Steelhead - South-Central California Coast Distinct Population Segment [DPS] (*Oncorhynchus mykiss irideus*) work window.

CAWD needs the flexibility to conduct in-water pipeline removal work year-round because this work would be completed after the new pipelines are installed and would most likely not be able to be completed prior to October 31st. If pipeline removal cannot be completed prior to October 31st, it would require CAWD to demobilize for the winter and then remobilize for a second construction season the following spring.

2.2.3 Wetlands and Riparian East of the Lagoon

In the riparian habitat on the east side of the Carmel River Lagoon, CAWD would limit the majority of construction activities including but not limited to, HDD entry/exit area excavations, pipeline trenching, and soil stabilization work to the May 1st to October 31st California red-legged frog (*Rana draytonii*) (CRLF) work window, when ground conditions on the east side of the lagoon are driest. However, due to length of construction schedule, CAWD needs the flexibility of conducting certain site mobilization and site preparation activities outside this window so that work on the east side of the lagoon can be completed prior to October 31st. As the proposed project is estimated to take 8 months to complete, CAWD would initiate minimally invasive site mobilization activities in later winter/early spring. Mobilization activities outside of the work window would be limited to delineating the work areas with construction fencing, tree pruning, and vegetation removal.

SECTION 3. CURRENT CONDITION OF NATURAL ENVIRONMENT

3.1 SURVEYS

3.1.1 General Site surveys

Extensive site surveys were conducted on the project site by Johnson Marigot Consulting, LLC (JMC) personnel Cameron Johnson, Sadie McGarvey, and Lauren Bingham on November 10, 2014 and September 13 and 14, 2017, and September 4, 2020. Surveys included walking the accessible portions of the project site to characterize current site conditions; to assess the presence of suitable resting, nesting, and/or roosting wildlife habitat; and to conduct an inventory of species observed within the project site. In addition, general current uses of the site were noted, as well as general observations of neighboring property uses. Prior to site investigations, literature reviews were conducted of known and potential special-status species, including query of the California Natural Diversity Database (CNDDB), the Inventory of Rare, Threatened, and Endangered Plants of California (CNPS), and the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation tool (IPaC) for special status species having a range that overlaps with the project site boundaries. In addition, the National Marine Fisheries Service (NMFS) West Coast Region California Species List was reviewed for species observed on the same quadrangle as the project site (Monterey Quad).

3.1.2 Rare Plant Surveys

Rare plant surveys were conducted on a 7.2-acre subset of the project site in 2018. Focused rare plant surveys were conducted by LSA botanist Tim Milliken on March 26 and 27, April 2, May 16, and August 3, 2018. A late season floristic survey was conducted throughout the remaining 10.8 acres of the project site in 2020. JMC biologists Ms. McGarvey and Ms. Bingham conducted a focused rare plant survey on September 4, 2020. Surveys were conducted in accordance with all applicable survey guidelines including those published by USFWS (USFWS 2000), CDFW (CDFW 2018) and CNPS (CNPS 2001). Plant species encountered were identified to species and recorded in field notes.

In order to complete protocol-level rare plant surveys on the project site, additional floristic surveys are scheduled to occur in 2021.

3.1.3 Arborist Survey

An arborist survey was conducted on a 7.2-acre subset of the project site in 2018. A focused tree survey was conducted by LSA certified arborist Timothy Milliken on March 26 and 27, 2018. Tree surveys were conducted pursuant to the policies and procedures pertaining to tree preservation and protection outlined in the Monterey County Zoning Ordinance – Section 21.64.260 – Preservation of Oak and Other Protected Trees (see Section 6.5) and Monterey County Coastal Implementation Plan, Part 4, Regulations for Development in the Carmel Area Land Use Plan (Chapter 20.146, Carmel Area LUP) (see Section 6.3). Each tree was mapped using a handheld GPS unit and marked in the field using numbered tree tags. An arborist survey of the eastern HDD work area is scheduled to occur in 2021.

3.1.4 Wetland Delineation

A field survey was conducted on September 4, 2020, by JMC personnel Ms. McGarvey and Ms. Bingham. During the field survey, the approximately 18-acre project site was surveyed to determine

the location and extent of potential WOTUS. The investigation of potentially jurisdictional WOTUS followed the methods described in the Army Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987), supplemented with guidance as directed by the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008). The boundaries of potential WOTUS were mapped using a Juniper Systems Geode Global Navigation Satellite System (GNSS), with sub-meter accuracy, using standard field methodologies (i.e., paired data set analyses).

3.2 LIMITATIONS AND ASSUMPTIONS THAT MAY INFLUENCE RESULTS

Most of the project site was accessible to the surveying biologist, with exception of some very dense willow thickets. Surveys were conducted during the seasons when special-status species under the jurisdiction of National Oceanic and Atmospheric Administration (NOAA) Fisheries, USFWS, and CDFW that could occur near the project site would be observable; however, wildlife species may be cryptic, generally difficult to detect, transient, nocturnal, or migratory species that may only occur within the project site for short or fleeting time periods. Wildlife species may only be active during particular times of the year, such as the breeding season, or may only use the project site temporarily. In addition, all species that occur in the lagoon waters (e.g., fish) are typically not visible from land, except when animals breach the water's surface. For these reasons, wildlife species may be present but not observed. This limitation may influence the study results.

3.3 EXISTING SITE CONDITIONS

The project site occurs within the Carmel River Lagoon and its surrounding uplands and consists of undeveloped land transected by several maintenance roads and pedestrian trails. The northeastern portion of the project site includes the levee of the former Odello family artichoke farm.

Topography within the project site is variable, with elevations ranging between 7 feet and 62 feet relative to North American Vertical Datum of 1988 (NAVD 88). On the east side of the Carmel River Lagoon, elevations range from 19 feet adjacent to the CAWD Treatment Plant to 7 feet at the lagoon. On the west side of the lagoon, there is a rapid elevation gain from 7 feet to 62 feet, which then gradually slopes to 25 feet at the western boundary of the project site. The portion of the lagoon within the project site is typically between 10 and 15 feet deep, with the deepest part of the point occurring north of the lagoon pipeline crossing structure with an elevation of approximately -4 feet (NAVD 88).

3.3.1 Watershed and Hydrology

The Carmel River Watershed is located within the California Coast Ranges Geomorphic Province. The entire drainage area of the watershed is located on the western slopes of the Sierra De Salinas. The northwesterly flowing Carmel River originates approximately 35 miles upstream from Carmel Bay at an elevation of 3,500 feet above sea level. Streamflow in the Carmel River is directly attributed to rainfall. According to the National Weather Service, average annual precipitation is estimated between 18 to 20 inches. Like many other watersheds along the Central California Coast, the Carmel River watershed has a typical coastal California wet-dry seasonal pattern that can vary significantly.

More than 90 percent of the annual rainfall typically occurs over the watershed during the six-month period between November and April.

A 100-acre lagoon, and associated wetlands, occurs at the mouth of the Carmel River where it is tributary to the Pacific Ocean. The water surface elevation of the lagoon varies significantly over the course of the year, ranging from 4 feet to 15 feet NAVD 88 (MPWMD 2020). In the summer months, when forces associated with ocean waves are greater than streamflow, a sandbar barrier develops across the mouth of the Lagoon. Following sandbar formation, the surface water elevation in the lagoon steadily drops, reaching its lowest elevation of approximately 6 feet NAVD 88 in late August and early September. When winter rains establish adequate stream flow, the river breaches the lagoon sandbar resulting in water elevations within the lagoon dropping dramatically (as low as 4 feet). Often, to prevent flooding, the lagoon is artificially breached when surface elevation of the lagoon reaches 14 feet. The sandbar breach also returns tidal influence to the lagoon, resulting in daily fluctuations of surface water elevation. In the fall, prior to opening, potentially abrupt increases in water surface elevations can occur due to streamflow inputs and wave overtopping as rainfall begins and ocean conditions change (ENGEO 2018). These seasonal variations in hydrology strongly influence Lagoon and associated wetlands.

The depth of the lagoon in the project area is typically about 10 to 15 feet deep, with the deepest part of the lagoon north of the lagoon pipeline crossing structure at an elevation of about -4 feet NAVD 88.

3.3.2 Vegetation Communities

Per CDFW's California Wildlife Habitat Relationships System, the predominant vegetation community within the project site is valley foothill riparian and coastal scrub. The project site includes a portion of the south arm of the Carmel River Lagoon, a tidal estuary connected to the Pacific Ocean, saline emergent wetlands, and fresh emergent wetlands. There is also a small barren area where the CAWD entrance road and adjacent pullout intersects the eastern edge of the project site (Mayer and Laudenslayer 1988). A vegetation community map of the project site is provided in Figure 5. A list of plant species observed on the project site are provided in Appendix C.

3.3.2.1 Valley Foothill Riparian

Riparian areas are the vegetation communities that occur adjacent to rivers, streams, and lakes that act as the transition between terrestrial and aquatic ecosystems. The valley foothill riparian vegetation community dominates the central and eastern portion of the project site adjacent to the Carmel River Lagoon. The dense canopy (70-100% canopy cover) is predominately willows (*Salix spp*.), coast live oak (*Quercus agrifolia*), and cottonwood (*Populus fremontii*), with sub-dominant species including elderberry (*Sambucus nigra*), and dogwood (*Cornus sericea*). The understory is densely vegetated and is dominated by California blackberry (*Rubus ursinus*) and poison oak.

The valley foothill riparian vegetation community in the eastern portion of the project site exhibits evidence of prior disturbance and is in an early successional stage dominated by ruderal vegetation. These species may be native or non-native but are often thought of as "weedy" species. Dominant species in this area include non-native herbaceous species such as Italian thistle (*Carduus pycnocephalus*), poison hemlock (*Conium maculatum*), bristly ox-tongue (*Helminthotheca echioides*),

and Canada horseweed (*Erigeron canadensis*), as well as non-native grasses such as Italian wildrye (*Festuca perennis*), slender wild oat (*Avena barbata*), and rip-gut brome (*Bromus diandrus*). A small population of native plants occurs within the shrub layer and includes species such as coyote brush (*Baccharis pilularis*), California blackberry, and California sage (*Artemisia californica*).

3.3.2.2 Coastal Scrub

The southwestern portion of the project site is dominated by coastal scrub. This plant community is densely vegetated and is dominated by Monterey cypress (*Hesperocyparis macrocarpa*), California sage, poison oak, silver bush lupine (*Lupinus albifrons*), coyote brush, ice plant, poison hemlock, and black mustard (*Brassica nigra*).

3.3.3 Aquatic Resources

Approximately 3.74 acres of potential WOTUS have been mapped on the project site, including 0.64 acre of seasonal wetland, 2.63 acre of perennial wetland, 0.47 acre of navigable waters, and 0.001 acre of drainages.

3.3.3.1 Seasonal Wetland

Seasonal wetlands occur throughout the central portion of the project site. These wetlands are dominated by brown-headed rush (*Juncus phaeocephalus*), salt grass (*Distichlis spicata*), tall flatsedge (*Cyperus eragrostis*), narrow hairgrass (Calamagrostis stricta), gumweed (*Grindelia camporum*), and rabbitsfoot grass (*Polypogon monspeliensis*), with lesser common species including hyssop loosestrife (*Lythrum hyssopifolia*), common spikerush (*Eleocharis macrostachya*), sneezeweed (*Helenium puberulum*), and bird's foot trefoil (*Lotus corniculatus*). The seasonal wetland hydrology is supported by shallow groundwater and seasonal ponding associated with direct rainfall. When lagoon water elevations are high these areas may also experience inundation in the early winter prior to the breach of the sandbar.

3.3.3.2 Perennial Wetland

The southwestern portion of the project site is dominated by perennial wetland. Perennial ponding occurs as a result on the topographic low elevations resulting in groundwater inundation and flooding associated with the lagoon. At the time of the September site visit, the perennial wetlands were still inundated with several inches of water. Dominant species in the perennial wetland included Santa Barbara sedge (*Carex barbarae*), fleshy jaumea (*Jaumea carnosa*), spotted ladies thumb (*Persicaria maculosa*), dotted smartweed (*Persicaria punctata*), and hardstem bulrush.

3.3.3.3 Navigable Waters

The central portion of the project site is dominated by the Carmel River Lagoon channel. A canoe or kayak could utilize the Carmel River Lagoon for recreation purposes during most of the year. This area is seasonally navigable dependent on the status of the lagoon (i.e. open to the ocean or closed). The open water portion of the channel (herein identified as "navigable waters") was approximately 60-70 feet wide and just over 6 feet deep at the time of the September site visit. Dense stands of ditchgrass (*Ruppia maritima*) were observed within the navigable waters.

SECTION 4. STATE AND FEDERAL SPECIAL-STATUS SPECIES, POLICIES, AND REGULATIONS

Special-status species include species considered to be rare by federal and/or state resource agencies (USFWS, NMFS, CDFW) and/or the scientific community (CNPS) and are accordingly legally protected via the federal, state, and/or local laws defined below.

Federal Endangered Species Act (FESA): The FESA prohibits the take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of any wildlife species listed by USFWS or NMFS as threatened or endangered, including the destruction of habitat that could hinder species recovery. The USFWS and NMFS have regulatory authority over listed plants, wildlife, and fish, overseeing the implementation of FESA (50 CFR § 402.7, Section 305(b)(4)(B). To remain compliant with the FESA, federal agencies, such as USACE, are required to consult with the resource agencies prior to issuance of a permit if a project may adversely affect a federally listed species. If USACE is able to determine the project would have no effect on a listed species (when there is no potential for presence of a listed species), no additional consultation is required. USFWS and NMFS administer the FESA and authorize exceptions to the take provisions through issuance of Biological Opinions in consultation with the federal action agency (e.g., USACE or Federal Emergency Management Agency). USFWS has primary responsibility for terrestrial and freshwater organisms, whereas the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish such as salmon.

Migratory Bird Treaty Act (MBTA): The MBTA of 1918 (16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755; as amended in 1936; 1960, 1968, 1969, 1974, 1978, 1986, and 1998) (between the United States, Canada, Mexico, and Japan) prohibits the take (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct) of any migratory bird or any part, nest, or egg of any such bird. The USFWS issues permits for take of migratory birds related to scientific collecting, banding and marking, falconry, raptor propagation, depredation, import, export, taxidermy, waterfowl sale and disposal, and special purposes.

Magnuson-Stevens Fishery Conservation and Management Act (MSA): The MSA (16 USC §§ 1801–1884) was passed in 1976 to conserve and manage U.S. fishery resources, prevent overfishing, rebuild overfished stocks, and facilitate long-term protection of Essential Fish Habitat (EFH). The MSA (Section 3) defines EFH as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity", and includes the associated physical, chemical, and biological properties that are used by fish (50 CFR 600.10). An "adverse effect" on EFH means any impact which reduces either the quality or quantity of EFH (50 CFR 600.910(a)). A subset of EFH are Habitat Areas of Particular Concern (HAPCs). These areas provide important ecological functions and/or are especially vulnerable to degradation and can be designated based on either specific habitat types or discrete areas. Estuaries and submerged aquatic vegetation (e.g., eelgrass) are both HAPCs.

The MSA is implemented by regional Fishery Management Councils that work with NOAA Fisheries to develop and implement Fisheries Management Plans (FMPs). The FMPs must identify the EFH for each fishery within their jurisdiction. Section 305(b) of the MSA directs federal agencies to consult

with NOAA Fisheries on all actions or proposed actions that may adversely affect EFH to obtain avoidance and minimization consultation as well as conservation and enhancement recommendations.

Marine Mammal Protection Act: The Marine Mammal Protection Act (MMPA) establishes a federal responsibility to conserve marine mammals, with management vested in the Department of Commerce (NOAA) for cetaceans (whales, dolphins, and porpoises) and pinnipeds (seals and sea lions) (with the exception of walrus) and the Department of the Interior (USFWS) for all other marine mammals. The MMPA of 1972 prohibits the "take" of any marine mammal (including cetaceans, pinnipeds, sirenians [manatees and dugongs], sea otters, and polar bears) within U.S. waters and/or by U.S. citizens on the high seas, as well as the importation of marine mammals and marine mammal products into the U.S. Pursuant to the MMPA, "take" is defined as the act of hunting, killing, capture, and/or harassment of any marine mammal, or the attempt at such. Protections afforded by the MMPA extend to species without listing under FESA or the California Endangered Species Act. Exceptions are established for incidental take of small numbers of marine mammals where the take would be limited to harassment. An authorization for incidental take of marine mammals is called an Incidental Harassment Authorization (IHA).

Under the 1994 Amendment to the MMPA, harassment is statutorily defined as "any act of pursuit, torment, or annoyance which has the potential to injure or disturb a marine mammal or marine mammal stock in the wild." Harassment that has the potential to injure a marine mammal is further defined as Level A harassment. Harassment that has the potential to disturb a marine mammal by disrupting behavioral patterns including, but not limited to migration, breathing, nursing, breeding, feeding, or sheltering, but does not have the potential to injure a marine mammal, is defined as Level B harassment.

California Endangered Species Act (CESA): CESA prohibits the take (hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill) of any wildlife species listed as endangered and threatened by the state of California. Section 2090 of the CESA requires state agencies to comply with regulations for protection and recovery of listed species and to promote conservation of these species. CDFW administers the act and authorizes exceptions to the take provisions through section 2081 agreements (Incidental Take Permits [ITPs]) (except for designated "fully protected species"). Regarding rare plant species, the CESA defers to the California Native Plant Protection Act of 1977. Species that the commission has noticed as being under review for listing by CDFW are likewise given full CESA protection.

California Native Plant Protection Act & California Fish and Game Code (Plants): The CNPS designates California Rare Plants through a ranking system. Rank 1A, 1B, and 2 meet the definitions established in Sec. 1901, Chapter 10 (Native Plant Protection Act of 1977) or Secs. 2062 and 2067 of the CESA and are eligible for state listing (CNPS Inventory, 2015). Some Rank 3 and 4 plants may fall under Section 15380 of CEQA.

California Fish and Game Code (Fully Protected Species): To provide additional protections for wildlife that is rare or faces potential extinction, California Fish and Game Code Sections 3511, 4700,

5050, and 5515 designate "fully protected" status for specific birds, mammals, reptiles, amphibians, and fish. The State of California designated 37 species of wildlife that were rare or faced possible extinction with the classification of Fully Protected in the 1960s (FGC § 3511, 4700, 5050, 5515) to provide additional protection to those species. Fully protected species cannot be taken or possessed at any time and no licenses or permits can be issued for their take. Exceptions are established for scientific research collection, relocation of the bird species for the protection of livestock, and take resulting from recovery activities for state-listed species.

California Fish and Game Code (Birds): California Fish and Game Code (Section 3503) prohibits the take of nest or eggs of any bird. Raptors and other fully protected bird species are further protected in Sections 3503.5 and 3511, which state that raptors/fully protected birds or parts thereof may not be taken or possessed at any time.

California Fish and Game Code (Marine Mammals): Section 4500 of the California Fish and Game Code addresses take of marine mammals, stating that it is unlawful to take any marine mammal except in accordance with provisions of the MMPA of 1972 or provisions of Title 50 of the Code of Federal Regulations or pursuant to subdivision (b) of this section.

California Department of Fish and Wildlife Species of Special Concern: A species of special concern is an administrative designation given by CDFW to a native species that meets one or more of the following criteria: extirpated for the state; federally (but not state) listed; experiencing, or formerly experienced, population declines or range restrictions; has naturally small populations at high risk of declines. While this designation carries no legal status, CEQA (Section 15380) indicates that species of special concern should be included in an analysis of project impacts.

4.1 METHODOLOGY

Information about biological resources that could occur within the Project site was obtained from the following sources:

- CNDDB RareFind 5 (CDFW 2020)
- CNPS Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2020)
- NMFS Listed Species, Critical Habitat, EFH, and MMPA species lists (NOAA 2016)
- NOAA Fisheries Critical Habitat shapefiles
- NOAA Fisheries EFH shapefiles
- NOAA Fisheries EFH Mapper (NOAA 2020)
- USFWS Information for Planning and Consultation (IPaC) species list
- existing literature as cited in the text.

The NOAA Fisheries Listed Species, Critical Habitat, EFH, and MMPA species data were utilized to query all federally endangered, threatened, candidate, and proposed fish species, as well as designated critical habitat (defined as habitats determined to be essential for the survival of that species) and EFH in the Monterey quadrangle. NOAA shapefiles were used to map critical habitat and EFH within and near the project site.

In addition, the CNDDB was used to query all special-status species with known occurrences within a 3-mile radius surrounding the project site. A 3-mile radius was selected because it includes the area surrounding the project site and much of Monterey Bay, but excludes terrestrial species known to occur only in inland habitats and marine species not known to occur within the Monterey Bay. A query of the CNPS Inventory of Rare, Threatened, and Endangered Plants of California was conducted for state and federally listed and candidate species, as well as CNPS-ranked species known to occur on the same quadrangle as the project site (San Francisco North) was also conducted to determine additional special-status plants with potential to occur within the project site.

The species identified in these searches were compiled in tables (Appendix A) and evaluated for likelihood of occurrence within the project site. The potential for species to occur within the project site was classified as high, moderate, low, or none using the definitions provided below.

High: The potential for a species to occur was considered high when the project site was located within the range of the species, recorded observations were identified within known dispersal distance of the project site, and suitable habitat was present within the project site.

Moderate: The potential for a species to occur was considered moderate when the project site was located within the range of the species, recorded observations were identified nearby but outside known dispersal distance of the project site, and suitable habitat was present within the project site. A moderate classification was also assigned when recorded observations were identified within known dispersal distance of the project site but habitat within the project site was of limited or marginal quality.

Low: The potential for a species to occur was considered low when the project site was within the range of the species, but no recorded observations within known dispersal distance were identified, and habitat within the project site was limited or of marginal quality. The potential for a species to occur was also classified as low when the project site was located at the edge of a species' range and recorded observations were extremely rare, but habitat in the project site was suitable.

None: The potential for a species to occur was considered none when a species was not expected to occur within or adjacent to the project site.

4.2 SPECIAL-STATUS PLANTS

According to the CNDDB, the CNPS Inventory of Rare, Threatened, and Endangered Plants of California, and the USFWS IPac tool, a total of 37 special-status plant species are known to occur in the vicinity of the project site. A brief description of each of these species is included within Appendix A (Table A), including the species' status, habitat, and probability of occurring on the project site. Of these regionally occurring special-status plant species, 8 require specialized habitats that *do not* occur within the project site's valley foothill riparian or coastal scrub vegetation communities including valley and foothill grassland, coniferous forest, broadleafed upland forest, chaparral, and cismontane woodland. The remaining 29 special-status plant species (see Table 2 below) have the potential to occur on the project site.

Rare plant surveys were conducted on a 7.2-acre portion of the project site in 2017. No special-status plants were observed during these protocol-level surveys. Regardless, protocol-level rare plant surveys have not been completed for the remaining 10.8 acres of the project site. Accordingly, in the absence of negative findings obtained within protocol-level rare plant surveys, *it is possible that the proposed project may result in adverse impacts to special-status plant species. These impacts can be reduced to a level considered less than significant pursuant to CEQA with the implementation of the AMMs and Regulatory Authorizations presented in Section 7 and Mitigation Measure BIO-1a, below.*

Table 2. Special Status Plant Species with Potential to Occur on the Project Site

Scientific Name	Common Name	Status
Allium hickmanii	Hickman's Onion	CNPS
Arctostaphylos hookeri ssp. *hookeri*	Hooker's Manzanita	CNPS
Arctostaphylos pumila	Sandmat Manzanita	CNPS
Arenaria paludicola	Marsh Sandwort	FE, CE, CNPS
Astragalus tener var. *titi*	Coastal Dunes Milk-Vetch	FE, CE, CNPS
Castilleja ambigua ssp. *insalutata*	Pink Johnny-Nip	CNPS
Chorizanthe pungens var. *pungens*	Monterey Spineflower	FT, CNPS
Clarkia jolonensis	Jolon Clarkia	CNPS Rank 1B.2
Collinsia multicolor	San Francisco Collinsia	CNPS Rank 1B.2
Cordylanthus rigidus ssp. *littoralis*	Seaside Bird's-Beak	CE, CNPS
Delphinium hutchinsoniae	Hutchinson's Larkspur	CNPS
Ericameria fasciculata	Eastwood's Goldenbush	CNPS
Eriogonum nortonii	Pinnacles Buckwheat	CNPS
Erysimum menziesii	Menzie's Wallflower	FE, CE, CNPS
Fritillaria liliacea	Fragrant Fritillary	CNPS
Gilia tenuiflora ssp. *arenaria*	Monterey Gilia	FE, CT, CNPS
Horkelia cuneata ssp. *sericea*	Kellogg's Horkelia	CNPS

Layia carnosa	Beach Layia	FE, CE, CNPS
Lupinus tidestromii	Tidestrom's Lupine	FE, CE, CNPS
Malacothamnus palmeri var. *involucratus*	Carmel Valley Bush-Mallow	CNPS
Malacothrix saxatilis var. *arachnoidea*	Carmel Valley Malacothrix	CNPS
Meconella oregana	Oregon Meconella	CNPS
Microseris paludosa	Marsh Microseris	CNPS
Monardella sinuata ssp. *nigrescens*	Northern Curly-Leaved Monardella	CNPS
Pinus radiata	Monterey Pine	CNPS
Piperia yadonii	Yadon's Rein Orchid	FE, CNPS
Potentilla hickmanii	Hickman's Cinquefoil	FE, CE, CNPS
Trifolium hydrophilum	Saline Clover	CNPS
Trifolium polyodon	Pacific Grove Clover	CR, CNPS

4.3 SPECIAL STATUS WILDLIFE

According to the CNDDB, the USFWS IPac tool, the NMFS West Coast Region California Species List for Monterey Quad, personal observation, and existing literature, a total of 37 special-status wildlife species are known to occur in the vicinity of the project site or have ranges that overlap with the project site. A brief description of each of these species is included in Appendix A (Table B), including the species' status, habitat, and probability of occurring within the project site.

4.3.1 Special Status Wildlife Not Expected to Occur within the Project site

The project site does not provide suitable habitat for 26 of the 37 regionally known special-status species identified as occurring in the vicinity of the project site due to lack of suitable habitat and/or lack of range overlap.

Lack of Suitable Habitat

As the project site is located within the Carmel River Lagoon and its adjacent uplands, the regionally known special-status open ocean and nearshore species such as whales (blue whale [*Balaenoptera musculus*], fin whale [*Balaenoptera physalus*], humpback whale [*Megaptera novaeangliae*], North Pacific right whale [*Eubalaena japonica*], sei whale [*Balaenoptera borealis*], southern resident killer whale [*Orcinus orca*], and sperm whale [*Physeter macrocephalus*]), southern sea otter (*Enhydra lutris nereis*), Guadalupe fur seal (*Arctocephalus townsendii*), black abalone (*Haliotis cracherodii*), and sea turtles (green sea turtle - East Pacific DPS [*Chelonia mydas*], leatherback sea turtle [*Dermochelys*

coriacea], Olive Ridley sea turtle [*Lepidochelys olivacea*], and North Pacific loggerhead sea turtle [*Caretta caretta*]) are not expected to occur within the project site.

Due to the lack of specific nesting/breeding habitat components such as cliffs and tall trees (nesting habitat for black swift [*Cypseloides niger*], California condor [*Gymnogyps californianus*], and marbled murrelet [*Brachyramphus marmoratus*]), sandy/pebbly beaches (nesting habitat for western snowy plover [*Charadrius nivosus nivosus*]), grasslands and freshwater seasonal wetlands/vernal pools (breeding and oversummering habitat for California tiger salamander [*Ambystoma californiense*] and vernal pool fairy shrimp [*Branchinecta lynchi*]), and open slopes within meadows or grasslands (nesting habitat for western bumble bee [*Bombus occidentalis*]), special-status species requiring these habitat components are likewise not expected to occur within the project site.

Species Range Does Not Include the Carmel River Lagoon and/or Overlap with the Project Site

The project site occurs outside of the known range of least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*). The Carmel River Lagoon is outside of the spawning range for Green Sturgeon - Southern DPS (*Acipenser medirostris*) and is no longer considered to be inhabited by tidewater goby (*Eucyclogobius newberryi*).

4.3.2 Species with Potential to Occur within the Project Site

The remaining 11 regionally known special-status species, MSA managed fish, and MBTA protected birds have the potential to occur within the project site. These species are further discussed in the following sections. Table 3 summarizes these species with potential to occur and legal status.

4.3.2.1 Amphibians

Two special-status amphibian species have the potential to occur within the project site: California red-legged frog (Federally Threatened and California Species of Special Concern) and coast range newt (California Species of Special Concern). California red-legged frog has been observed within the Carmel River Lagoon, with records occurring within the project site (CNDDB Occurrence No. 472). In addition to upland occurrences on the east side of the lagoon, there are multiple occurrence records of CRLF tadpoles and adults in the south arm of the Carmel River Lagoon, indicating this part of the lagoon is utilized for CRLF breeding habitat (HTH 2013). While coast range newt has not been observed within the project site (CNDDB Occurrence No. 70), the valley foothill riparian woodland provides suitable habitat for this species.

As part of site preparation activities, approximately 0.3 acre of potentially occupied valley foothill riparian woodland and perennial and seasonal wetland would be cleared. Construction access, staging, and ground disturbance would also occur in riparian vegetation and wetlands, resulting in temporary disturbance to potentially suitable habitat. Finally, pipeline removal activities in the Carmel River Lagoon could also result in temporary impacts to breeding habitat for California red-legged frog. *Impacts could be incurred to special-status amphibians as a result of project implementation. These impacts can be reduced to a level considered less than significant with implementation of the Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Section 7 and Mitigation Measure BIO-2, below.*

Table 3. Special Status Wildlife Species with Potential to Occur on the Project Site

Common Name	Scientific Name	Status
Amphibians		
California Red-Legged Frog	*Rana draytonii*	FT, CSC
Coast Range Newt	*Taricha torosa torosa*	CSC
Birds		
White-tailed Kite	*Elanus leucurus*	CFP
Migratory Birds	--	MBTA
Fish		
Steelhead (South-Central California Coast DPS)	*Oncorhynchus mykiss irideus*	FT
MSA Managed Fish	--	MSA Managed
Invertebrates		
Monarch (Overwintering Population)	*Danaus plexippus plexippus*	FC
Smith's Blue Butterfly	*Euphilotes enoptes smithi*	FE
Mammals		
Monterey Dusky-Footed Woodrat	*Neotoma macrotis luciana*	CSC
Monterey Shrew	*Sorex ornatus salarius*	CSC
Pacific Harbor Seal	*Phoca vitulina*	MMPA
Reptiles		
Northern California Legless Lizard	*Anniella pulchra (formerly* ssp. nigra)	CSC
Western Pond Turtle	*Emys marmorata*	CSC

4.3.2.2 Birds

The valley foothill riparian woodland and the tall, dense wetland vegetation on the project site provide suitable nesting habitat for a variety of birds including passerines, raptors, and waterfowl. The protected nature of the Carmel River Lagoon and the project site's location therein provides attractive nesting opportunities for special-status birds. White tailed kite (California Fully Protected) have been observed exhibiting nesting behavior within the project site.

As part of site preparation activities, approximately 0.6 acre of suitable nesting habitat within the onsite valley foothill riparian woodland, perennial wetland, and coastal scrub would be cleared or

temporarily disturbed. Further, project related activities could produce in-air sound levels that could disturb nesting birds outside of the project site footprint. Accordingly, while it is unlikely that the proposed project would result in take of individual birds, active nests (i.e., nests with viable eggs and/or chicks) may be impacted by project-related activities that result in nest abandonment or destruction. *Impacts to nesting birds, protected pursuant to the MBTA and California Fish and Game Codes, could occur as a result of project implementation. These impacts can be reduced to a level considered less than significant with implementation of AMMs presented in Section 7 and Mitigation Measure BIO-4, below.*

4.3.2.3 Fish

A single special-status fish species is known to occur within the Carmel River Lagoon and has the potential to occur within the project site: steelhead (South-Central California Coast Distinct Population Segment) (SCCC steelhead DPS) (Federally Threatened). The Carmel River and Carmel River Lagoon are designated as critical habitat for SCCC steelhead. In addition, portions of the Carmel River and the Carmel River Lagoon are classified as EFH for finfish, krill, coastal pelagic species, and groundfish; these species are managed under the Pacific Coast Groundfish FMP, the Coastal Pelagic Species FMP, and the Highly Migratory Species FMP. The upstream/landward extent of these mapped EFH units includes Mean Higher High Water level (MHHW) or the upriver extent of saltwater intrusion, which includes the in-water portion of the project site.

Steelhead are known to occur within the Carmel River Lagoon, and as the project site occurs within the upstream/landward extent of the mapped EFH units, presence of these fish cannot be ruled out. *Impacts could be incurred to special-status fish species as a result of project implementation. These impacts can be reduced to a level considered less than significant with implementation the Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Section 7 and Mitigation Measure BIO-5, below.*

4.3.2.4 Invertebrates

Two special-status invertebrates have the potential to occur within the project site: overwintering monarch butterflies (*Danaus plexippus plexippus*) and Smith's blue butterfly (Federally Endangered). These species are not known to occur on or adjacent to the project site, however multiple records for these species occur within 3 miles of the project site.

While suitable habitat for overwintering monarch butterflies occurs along the northeastern boundary of the project site (a row of eucalyptus trees acts as a windbreak immediately south of the CAWD wastewater treatment facility), these trees will not be impacted by the proposed project. Accordingly, impacts to overwintering monarch butterflies are not expected to occur as a result of project implementation.

The closest record of Smith's blue butterfly is for individuals observed approximately 1.3 miles east of the project site on preserved land within the Palo Corona Regional Park. The coastal scrub within and adjacent to the project site provides potentially suitable habitat for this species and its obligate host plants (dune buckwheat [*Eriogonum parvifolium*] and seaside buckwheat [*Eriogonum latifolium*]). Johnson Marigot Consulting, LLC biologists Ms. McGarvey and Ms. Bingham observed

several dune buckwheat plants off the Carmel Meadows trail during their September 4, 2020 site visit, confirming presence of the host plant within the project site. As such, the presence of Smith's blue butterfly cannot be ruled out. *Impacts could be incurred to special-status invertebrates as a result of project implementation. These impacts can be reduced to a level considered less than significant with implementation of the Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Section 7 and Mitigation Measures BIO-3A and 3B, below.*

4.3.2.5 Mammals

4.3.2.5.1 Terrestrial Mammals

Two special-status mammal species have the potential to occur within the project site: Monterey dusky footed woodrat (woodrat) (California Species of Special Concern) and Monterey shrew (California Species of Special Concern). Several woodrat nests occur throughout the onsite valley foothill riparian woodland, however, there is a low potential for Monterey shrew to occur within the project site due to the onsite presence of marginal saltmarsh habitat in proximity to existing records (CNDDB Occurrence No. 5). However, it is of note that this species has not been observed in the vicinity of the project site since the early 1900s.

As part of site preparation activities, approximately 0.3 acre of valley foothill riparian woodland would be cleared, resulting in the removal of multiple woodrat nests and temporary alteration of habitat occupied by woodrat. Similarly, project related activities would result in temporary impacts to onsite wetlands considered to be potentially suitable habitat for Monterey shrew. *Impacts could be incurred to special-status mammals as a result of project implementation. These impacts can be reduced to a level considered less than significant with implementation of the Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Section 7 and Mitigation Measure BIO-6, below.*

4.3.2.5.2 Marine Mammals

A single marine mammal has the potential to occur within the project site: Pacific harbor seal (*Phoca vitulina*) (MMPA Protected Species). This species has been observed within the open waters of the lagoon next to the above-water portion of the existing pipelines. No other marine mammals have been recorded within the project site boundaries.

Marine mammals such as the Pacific harbor seal rely on sound for foraging, navigating, and communicating, and are sensitive to noise-related effects generated by construction activities. Project-related activities would not result in elevated in-water and/or airborne sound levels that would cause disturbance to marine mammals resulting in incidental harassment and/or take. Turbidity curtains, to be used to isolate the in-water work area (see Section 7.2.3, below), generally do not affect marine mammal access or preclude their mobility. *Protected marine mammals would not be impacted as a result of project implementation.*

4.3.2.6 Reptiles

Two special-status reptiles have the potential to occur within the project site: Northern California legless lizard (California Species of Special Concern) and western pond turtle (California Species of

Special Concern). Northern California legless lizard has been recorded as occurring within/adjacent to the western portion of the project site as recently as 1998 (CNDDB Occurrence No. 45). As part of site preparation activities, approximately 0.3 acre of coastal scrub habitat would be cleared, resulting in the temporary alteration of habitat potentially occupied by the Northern California legless lizard. Western pond turtle has been documented as occurring within the central portion of the project site (CNDDB Occurrence No. 1108). As part of site preparation activities, approximately 0.14 acre of perennial wetland habitat and navigable waters would be temporarily filled or impacted, resulting in the temporary alteration of habitat potentially occupied by the Western pond turtle. *Impacts could be incurred to special-status reptiles as a result of project implementation. These impacts can be reduced to a level considered less than significant with implementation of the Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Section 7 and Mitigation Measure BIO-2, below.*

4.4 SPECIAL STATUS HABITAT

4.4.1 Critical Habitat

The project site occurs within designated critical habitat for two federally listed species: California red-legged frog and SCCC steelhead.

CRLF was listed as federally threatened in 1996 (Federal Register 61:25813-25833), with critical habitat originally designated for this species in 2001 (Federal Register 66:14626-14674). This critical habitat ruling was contested (Home Builders Association of Northern California, et al. v. Norton, et al., Civ. No. 01-1291 (RJL) (D. D.C.)), withdrawn, reduced (Federal Register 71:19244-19346), and finally re-designated in 2010 (Federal Register 75:12816-12959). Impacts to CRLF critical habitat could occur associated with removal of potentially occupied valley foothill riparian woodland and temporary impacts to potentially occupied WOTUS. *Although* CRLF *critical habitat could be temporarily impacted during construction, these impacts can be reduced to a level considered less than significant with implementation of Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Section 7, below. The proposed project is expected to benefit critical habitat in the project site for CRLF in the long-term.*

The project site occurs entirely within critical habitat unit MNT-2. The SCCC steelhead was listed as federally threatened in 2006 (Federal Register 71:834-862), with critical habitat designated for the species in 2005 (Federal Register 70:69348-69350). The project site occurs entirely within the designated critical habitat within the Carmel River Hydrologic Unit 3307. Critical habitat within estuary habitat is defined by the perimeter of the water body or the elevation of extreme high water, whichever is greater. Impacts to SCCC steelhead critical habitat could occur associated with temporary impacts to potentially occupied WOTUS. *Although SCCC steelhead critical habitat could be temporarily impacted during construction, these impacts can be reduced to a level considered less than significant with implementation of Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Section 7, below. The proposed project is expected to benefit critical habitat in the project site for SCCC steelhead in the long-term.*

4.4.2 Essential Fish Habitat

Portions of the Carmel River and Carmel River Lagoon are classified as EFH for species managed under the Pacific Coast Groundfish FMP, the Coastal Pelagic Species FMP, and the Highly Migratory Species FMP. HAPCs are a subset of EFH and merit special attention from NOAA Fisheries. HAPCs are high priority areas for conservation and management because they are important to ecosystem function, sensitive to human activities, stressed by development, or rare (NOAA, 2020). The Pacific Coast Groundfish FMP designates HAPCs for groundfish along the west coast. The Coastal Pelagic Species FMP and the Highly Migratory Species FMP do not identify HAPCs for their covered species.

HAPCs for groundfish in the vicinity of the project site include the estuary both onsite and immediately north of the mouth of the Carmel River and the Monterey Canyon, which is a submarine canyon that originates at Moss Landing and extends to over 292 miles offshore. The Monterey Canyon HAPC is not located onsite, nor would it be impacted by the proposed project.

Project activities that may impact EFH and/or HAPC include the removal of the existing pipelines spanning the lagoon. The primary potential adverse effect to EFH and/or HAPC from removal of the existing pipelines is the suspension of sediments, which may result in harmful levels of turbidity. Cutting the supporting piles to the mudline may suspend only small amounts of sediment, if the stub is left in place and little digging is required to access the pile. There is a potential to adversely affect EFH and/or HAPC during the removal of the pipelines, however, the long-term benefits to EFH and HAPC obtained by removing the pipelines and their support piles outweigh the temporary adverse effect of turbidity.

Although EFH could be temporarily impacted during construction, these impacts can be reduced to a level considered less than significant with implementation of the Environmental Monitoring Plans, AMMs, and Regulatory Authorizations presented in Section 7, below.

4.4.3 Riparian Habitat

As part of project preparation activities, approximately 0.3 acre of valley foothill riparian woodland would be cleared of vegetation to accommodate HDD construction activities and associated equipment. Riparian habitats are special-status habitats, protected by state and local governments including CDFW (pursuant to California Fish and Game Code 1602 [Lake and Streambed Alteration], see Section 5) and Monterey County (pursuant to the Carmel Land Use Plan, see Section 6.3.1.2). *Although riparian habitat could be temporarily impacted during construction, these impacts can be reduced to a level considered less than significant with implementation of the AMMs and Environmental Monitoring Plans presented in Section 7, below.*

4.4.4 Wildlife Corridors and Nursery Sites

A wildlife corridor is an area of habitat adjoining two or more larger areas of similar wildlife habitat, often connecting wildlife populations separated by natural or created activities, disturbances, or structures. Wildlife corridors are used by individuals and populations for dispersal and migration, allowing for genetic exchange, population growth, and access to larger stretches of suitable habitats, and functionally reduce fragmentation.

The majority of the project site does not represent a regional or local migration corridor for any common or special-status wildlife species. However, the Carmel River Lagoon represents a significant part of the SCCC steelhead Carmel River migration route, with smolt residing in the lagoon (specifically in the southern arm of the lagoon which is usually the deepest portion of the lagoon during the summer months) after their Carmel River downstream migration and prior to entering the ocean. The proposed project would include work within the open water and perennial wetland portions of the Carmel River Lagoon associated with removal of the existing pipelines, however, this work would not result in barriers to movement to or from the lagoon, the Carmel River, or the ocean during construction.

The Carmel River Lagoon is also considered a nursery for amphibians, birds, fish, invertebrates, and mammals. The project site provides suitable foraging, breeding, and nesting habitat for some of these species, however the proposed project would not impede wildlife access to this habitat or other areas necessary for their reproduction.

In-water work would be isolated from the surrounding waters via installation on a turbidity curtain, however, the turbidity curtains would only isolate one side of the shore at a time to allow aquatic species to continue to move from one end of the lagoon to the other.

Although work would occur within a wildlife corridor and nursery site, the proposed project would not interfere with the movement of native resident or migratory fish or wildlife species or with established wildlife corridors or impede the use of a native wildlife nursery site.

SECTION 5. STATE AND FEDERAL AQUATIC RESOURCES, POLICIES, AND REGULATIONS

Aquatic resources are regulated by state and federal resource agencies (USACE, California State Water Resources Control Board (SWRCB), and CDFW) and are accordingly legally protected via the federal and/or state laws defined below.

Section 404 Clean Water Act (CWA): Section 404 of the Clean Water Act (CWA), administered by USACE, establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Per Section 404, a permit is required prior to discharge of fill material into waters of the United States, unless the activity is exempt from Section 404 regulation.

Waters of the United States generally include tidal waters, lakes, ponds, rivers, streams (including intermittent streams), and wetlands. Wetlands are "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 C.F.R. 328.3(b), 51 F.R. 41250, November 13, 1986]. Wetlands can be perennial or intermittent, and isolated or adjacent to other waters.

Other waters are non-tidal, perennial, and intermittent watercourses and tributaries to such watercourses [33 C.F.R. 328.3(a), 51 F.R. 41250, November 13, 1986].

Rivers and Harbors Act (RHA) of 1899: The RHA, also administered by the USACE, prohibits the construction of any bridge, dam, dike or causeway over or in navigable waterways of the U.S. Administration of section 9 has been delegated to the Coast Guard ((33 U.S.C. 403; Chapter 425, March 3, 1899; 30 Stat. 1151).

Water Pollution Control and Storm Water Management: The National Pollutant Discharge Elimination System (NPDES) Permit Program, also authorized by the CWA, controls water pollution by regulating point sources (discrete conveyances such as pipes or constructed ditches) that discharge pollutants into waters of the United States. The implementation of this federal program has been charged to the State of California for implementation through the SWRCB and RWQCBs. In California, NPDES permits are also referred to as waste discharge requirements (WDRs) that regulate discharges to waters of the United States.

Also implemented by the RWQCB is the Municipal Storm Water Permitting Program, which regulates storm water discharges from municipal separate storm sewer systems (MS4s). The MS4 Permit Program was established to restore and maintain the chemical, physical, and biological integrity waters of the U.S./State and reduce/eliminate storm water pollution.

Section 401 CWA: The State Water Resources Control Board (SWRCB) and its nine regional water boards (Regional Water Quality Control Boards) have been charged with the protection and enhancement of water quality in the state of California. Pursuant to the Porter Cologne Water Quality Control Act (Porter Cologne), waters of the State are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state." This is generally taken to include all

waters of the U.S., all surface waters not considered to be waters of the U.S. (non-jurisdictional wetlands), groundwater, and territorial seas (with territorial boundaries extending 3.0 nautical miles beyond outermost islands, reefs, and rocks and includes all waters between the islands and the coast). Per Porter Cologne, the RWQCB has authority to regulate discharges of fill and dredged material into Waters of the State.

Ocean Plan: The SWRCB has established five statewide water quality control plans to preserve and enhance the State's territorial ocean waters. SWRCB adopted the Ocean Waters of California Water Quality Control Plan (the Ocean Plan) in 1972. The Ocean Plan designates 34 ocean areas (Areas of Special Biological Significance [ASBS]) that support an unusual variety of aquatic life and are to be monitored and maintained for water quality along the coast of California. ASBS are protected through additional restrictions on the discharge of waste into the ocean and seawater intake.

California Fish and Game Code 1602 (Lake and Streambed Alteration): Pursuant to California Fish and Game code, the CDFW maintains jurisdiction over rivers, streams and lakes; this jurisdiction includes to all features exhibiting bed, bank, and channel (the extent of CDFW's jurisdiction on these features extends to the top of bank or the edge of riparian canopy - whichever is greater). This Fish and Game Code requires that any project that substantially diverts or obstructs the natural flow of a river, stream, or lake or substantially changes the bed or bank of a river, stream, or lake notifies CDFW prior to project implementation.

The National Marine Sanctuaries Act: The National Marine Sanctuaries Act (NMSA) authorizes the Secretary of Commerce to designate and protect areas of the marine environment with special national significance due to their important conservation, recreational, ecological, historical, scientific, cultural, archeological, educational or esthetic qualities. The primary objective of the NMSA is to protect marine resources, such as coral reefs, sunken historical vessels or unique habitats. The NMSA directs the NOAA to create national marine sanctuaries in special ocean areas of the United States and develop plans and regulations for their management and protection.

Federal Coastal Zone Management Act (CZMA) of 1972: The U.S. Congress addressed the regulation of development in the coastal zone by passing the CZMA in 1972. This act, administered by NOAA, provides for the management of the nation's coastal resources. The goal is to "preserve, protect, develop, and where possible, to restore or enhance the resources of the nation's coastal zone." The CZMA outlined the National Coastal Zone Management Program, of which 34 states including California participate. Section 307 of the CZMA, called the "federal consistency" provision, gives states a role in the federal agency decision making process for activities that may affect a state's coastal uses or resources. The CZMA encourages states to develop coastal management programs and implement the federal consistency procedures of the CZMA. Upon certification of a state's coastal management program, all federal agency activities (including federal development projects, permits and licenses, and assistance to state and local governments) affecting the coastal zone must be consistent with the enforceable policies of the state's certified program.

California Coastal Act of 1976: The federal government certified the California Coastal Management Program in 1977 as consistent with the Federal CZMA and as the implementation document where

the CZMA has jurisdiction. The enforceable policies are in Chapter 3 of the California Coastal Act of 1976; these policies address public access, recreation, the marine environment, land resources, development, and industrial development.

The Federal Consistency Unit of the California Coastal Commission (CCC) implements the CZMA as it applies to federal activities, development projects, permits and licenses, and federal support to state and local governments. The CCC also implements the California Coastal Act for non-federal activities. The CCC has planning, regulatory, and permitting responsibilities, in partnership with local governments, over all development taking place within the coastal zone, a 1.5 million-acre area stretching 1,100 miles along the state's coastline from Oregon to Mexico (and around nine offshore islands). From the shoreline, the coastal zone extends seaward three miles and a variable distance landward, from several 100 feet to several miles inland. In the case of the Carmel Lagoon, the CCC has State Tidelands jurisdiction that extends over the entire lagoon.

The Coastal Act was designed to be carried out by local governments through the creation and implementation of Local Coastal Programs (LCPs). The preparation of an LCP (comprised of a Land Use Plan and an Implementation Plan and certified by the CCC) is required from all coastal counties and cities for the portion of their jurisdiction that falls within the coastal zone.

Monterey County General Plan: In October 2010, the Monterey County Planning Commission adopted the updated 2010 Monterey County General Plan (2010 General Plan). This 2010 General Plan includes policies that address the existing and future land use within the County. It is of note that the 2010 General Plan does not amend and is not intended to outrank the measures within the Carmel LUP (i.e., the County's coastal zone is managed by the Monterey County LCP, and the four approved LUPs therein). This approach to local land use policy recognizes that the coastal zone is a distinct and valuable natural resource which requires unique planning considerations and may require different standards and policies than may apply in the non-coastal areas of the County.

Carmel Area Land Use Plan: The Coastal Act established a framework for local governments to create LCPs that address the conservation and use of public access and coastal resources. LCPs must be consistent with the policies of Coastal Act. As stated in the Carmel Area LUP:

> *The Coastal Act provides that its goals and policies are to be carried out by local government through a comprehensive and coordinated planning known [as the] LCP… The LCP is defined in Section 30108.6 of the Coastal Act as the local government's land use plans and implementing actions which, when taken together, meet the requirement of, and implement the policies of the-Act at the local level. When completed and approved by the local governing body, the LCP must be submitted to the Regional and State Coastal Commissions for certification. Once the LCP is certified, the local government will resume full permit authority for development coastal zone.*
>
> *The State Coastal Commission will continue to exercise permit jurisdiction over developments in the State Tidelands and will continue to hear appeals and review amendments to certified LCPs* [Section 1.2, page 18].

5.1 WATERS OF THE U.S./STATE

Seasonal wetland, perennial wetland, and navigable waters (open water of the Carmel River Lagoon) that are regulated by the state and federal government occur within the project site. The proposed project would require placement of temporary fill within 0.12 acre of seasonal and perennial wetlands on an existing unpaved maintenance road and pedestrian path to protect the wetlands and facilitate vehicular access to the work area. Project implementation would also require temporary impacts (no fill) to 0.08 acre of perennial wetlands and work in and over 0.06 acre of navigable waters for removal of the existing lagoon crossing pipeline structure. Finally, HDD methods necessitate boring below the Carmel River Lagoon, which could result in frac-out along the bore path. *Impacts to WOTUS can be reduced to a level considered less than significant with implementation of the AMMs and Regulatory Authorizations presented in Section 7, below.*

5.2 AREA OF SPECIAL BIOLOGICAL SIGNIFICANCE

The ocean waters just west of the project site are within the Carmel Bay Area of Special Biological Significance (Carmel Bay ASBS). The Carmel ASBS includes approximately 1,584 acres of ocean along 6.7 miles of coastline within the Monterey Bay National Marine Sanctuary, bordering the City of Carmel-by-the-Sea and the Pebble Beach Golf Course in Monterey County. The Point Lobos Ecological Reserve ASBS is adjacent to the southern extent of the Carmel Bay ASBS. Although the project site does not occur within any mapped ASBS, it does discharge into the Carmel Bay ASBS. Indirect effects associated with project implementation that could extend into the ASBS would be limited to temporary water quality degradation associated with turbidity increases during construction. Project AMMs however are expected to fully isolate water quality changes within the localized project area. *Impacts to ASBS can be reduced to a level considered less than significant with implementation of AMMs and Environmental Monitoring Plans presented in Section 7, below.*

5.3 NATIONAL MARINE SANCTUARY

The 6,094 square-mile Monterey Bay National Marine Sanctuary was designated on September 18, 1992 and expanded on March 9, 2009. This sanctuary extends from San Francisco to Cambria, California, and includes the Carmel Bay. The project site does not occur within the Monterey Bay National Marine Sanctuary. *The proposed project is not expected to result in any impacts to the Monterey Bay National Marine Sanctuary.*

5.4 COASTAL ZONE

In 1988, the LCP created by and for Monterey County was certified by the CCC and is discussed in detail in Section 6.1 of this analysis. Once certified, the CCC's coastal permitting authority over most new development is transferred to the local government, which applies the requirements of the LCP in reviewing proposed new developments. However, the CCC retains permanent coastal permit jurisdiction over development proposed on tidelands, submerged lands, and public trust lands. The LCP divided Monterey County's coastal zone into four land segments for the purposes of adequately addressing these different areas' differing characteristics and needs; the four segments are North County, Big Sur, Carmel, and Del Monte. The project site occurs in the Carmel coastal zone land segment.

The project site is located within both the Carmel Coastal Segment of the Monterey County LCP and the Coastal Commission's State Tidelands jurisdiction. The Carmel Coastal Segment extends from Pescadero Canyon in the north to Malpaso Creek in the south. Project implementation would temporarily impact resources in the coastal zone that include, but are not limited to, waters, vegetation, and public access. Impacts would result from removal of riparian vegetation, construction access on public trails, and in-water work activities. *Impacts to resources in the coastal zone can be reduced to a level considered less than significant with implementation of AMMs and Regulatory Authorizations, presented in Section 7, below.*

Pursuant to the Coastal Act, development within the Carmel Coastal Segment must comply with the Carmel Area Land Use Plan (LUP) and the Monterey County Coastal Implementation Plan. The below Carmel Area LUP and the Monterey County Coastal Implementation Plan policy measures and recommendations regard impacts to natural resources and are considered pertinent to the proposed project. Policies regarding specific project requirements such as County implementation of the review process and specific action recommendations for local, state, or federal agencies are not addressed below. Similarly, policy measures and recommendations that are clearly referring to projects or activities that are not related to the proposed project (e.g., residential, commercial, and recreational development projects) are not addressed below.

5.4.1 Environmentally Sensitive Habitats

5.4.1.1 General Policies

Policy 1

General Policy 1 states that "Development, including vegetation removal, excavation, grading, filling, and the construction of roads and structures, shall be avoided in critical and sensitive habitat areas, riparian corridors, wetlands, sites of known rare and endangered species of plants and animals, rookeries and major roosting and haul-out sites, and other wildlife breeding or nursery areas identified as critical. Resource-dependent uses, including nature education and research, hunting, fishing, and aquaculture, shall be allowed within environmentally sensitive habitats only if such uses will not cause significant disruption of habitat values. Only small-scale development necessary to support the resource-dependent uses may be located in sensitive habitat areas if they cannot feasibly be located elsewhere."

The proposed project consists of preemptive work to underground the sewer and outfall pipes in order to prevent future damage by increased river flows in the south arm created by the CRFREE project. This work will require vegetation removal, excavation, and other temporary disturbances to riparian and wetland habitat, as well as the south arm of the Carmel River Lagoon. This development within the environmentally sensitive habitats within the project site cannot be feasibly located elsewhere as it the work is location-dependent. As such, the development avoidance recommendation presented within this general policy measure does not apply to the proposed project.

Policy 2

General Policy 2 states that "Land uses adjacent to locations of environmentally sensitive habitats shall be compatible with the long-term maintenance of the resource. New land uses shall be considered compatible only where they incorporate all site planning and design features needed to prevent habitat impacts and where they do not establish a precedent for continued land development which, on a cumulative basis, could degrade the resource."

The proposed project consists of preemptive work to underground the sewer and outfall pipes in order to prevent future damage by increased river flows in the south arm created by the CRFREE project. The proposed project would result in temporary impacts to environmentally sensitive habitats in order to maintain and improve the sustainability of the pipeline within the Carmel River Lagoon area, which is compatible with and beneficial to long-term maintenance of the Carmel River Lagoon habitat.

Policy 5

General Policy 5 states that "Where private or public development is proposed in documented or expected locations of environmentally sensitive habitats - particularly those habitats identified in General Policy No. I - field surveys by qualified individuals or agency shall be required in order to determine precise locations of the habitat and to recommend mitigating measures to ensure its protection. This policy applies to the entire segment except the internal portions of Carmel Woods, Hatton Fields, Carmel Point (Night heron site excluded), Odello, Carmel Meadows, and Carmel Riviera. If any habitats are found on the site or within 100 feet from the site, the required survey shall document how the proposed development complies with all the applicable habitat policies."

As detailed in the sections above, field surveys conducted by JMC personnel Ms. McGarvey and Ms. Bingham (trained biologists and ecologists) were conducted on the project site to document natural resources present on and adjacent to the project site. The results of these surveys are included within this report. Mitigation measures are presented in Section 7 (below) that would ensure the protection of sensitive natural resources found on the project site. In addition, a certified arborist, approved by the County of Monterey, will conduct a tree survey and prepare their findings in a tree survey report to document impacts to trees associated with project implementation. This tree report will be provided to the County upon completion.

Policy 6

General Policy 6 states that "The County shall require deed restrictions or dedications of permanent conservation easements in environmentally sensitive habitat areas where development is proposed on parcels containing such habitats. Where development has already occurred in areas supporting sensitive habitat, property owners should be encouraged to voluntarily establish conservation easements or deed restrictions."

The establishment of conservation easements or deed restrictions within the project site is not necessary as the project site occurs within land owned and managed by State Parks. The proposed project would result in temporary impacts within this protected land.

5.4.1.2 Riparian Corridors and Other Terrestrial Wildlife Habitats

Policy 1

Riparian Corridors and Other Terrestrial Wildlife Habitats Policy 1 states that "Riparian plant communities shall be protected by establishing setbacks consisting of a 150-foot open space buffer zone on each side of the bank of perennial streams and 50 feet on each side of the bank of intermittent streams, or the extent of riparian vegetation, whichever is greater. No new development, including structural flood control projects, shall be allowed within the riparian corridor. However, improvements to existing dikes and levees shall be allowed if riparian vegetation damage can be minimized and at least an equivalent amount and quality of replacement vegetation is planted. In addition, exceptions may be made for carefully sited recreational trails. The setback requirement may be modified if it can be demonstrated that a narrower corridor is sufficient to protect existing riparian vegetation. Riparian vegetation is an association of plant species which typically grows adjacent to freshwater courses and needs or tolerates a higher level of soil moisture than dryer upland vegetation."

Due to the location of the proposed project, impacts to riparian habitat would be necessary in order to establish construction access and a work area for HDD and excavation/trenching. Upon completion of the proposed project, riparian vegetation would be replanted as required by state and local permits to be issued for the proposed project.

Policy 4

Riparian Corridors and Other Terrestrial Wildlife Habitats Policy 4 states that "To protect important wildlife habitat, all off-road recreational vehicle activity should be discouraged within riparian corridors and public access should be limited to designated areas. Accordingly, roads and trails should be sited to avoid impacts to riparian habitat."

CAWD's existing maintenance road on the east side of the lagoon passes through a riparian corridor. Riparian vegetation along this road would be trimmed to establish construction access and would be used for construction crews and equipment to access work areas. However, this maintenance road would not constitute a road or trail open for public use. As such, the avoidance recommendation presented within this general policy measure does not apply to the proposed project.

5.4.1.3 Wetlands and Marine Habitats Policy 1

Wetlands and Marine Habitats Policy 1 states that "A setback of 100 feet from the edge of all coastal wetlands shall be provided and maintained in open space use. No new development shall be allowed in this setback area."

Unavoidable temporary impacts would be incurred to portions of five wetlands as a part of project-related activities. Wetlands would be protected with construction mats, and restored to preexisting condition post-construction. Restoration plantings and monitoring will be conducted within these temporarily disturbed wetlands as required by local, state, and federal project authorizations. All wetlands adjacent to project work that are not scheduled for disturbance would be protected from incidental disturbances via intervening barriers to placement of fill such as silt fencing or flagging.

Setbacks around wetlands are not appropriate for the proposed project, and new development is not proposed.

5.4.2 Water and Marine Resources

5.4.2.1 Water Availability Policy 5

Water Availability Policy 5 states that "Any diversion of surface sources of water shall be required to submit an approved water appropriation permit from the SWRCB prior to approval of any coastal development permit except where such water appropriation permit is not required by applicable State law."

Project implementation would not require the diversion of surface sources of water. However, project authorizations would be obtained from the RWQCB and USACE prior to commencement of project-related activities that would temporarily impact WOTUS.

5.4.2.2 Water Pollution Control Policy 1

Water Pollution Control Policy 1 states that "All dumping of spoils (dirt, garbage, refuse, etc.) into riparian corridors and other drainage courses should be prohibited."

Project implementation would require that drilling fluid and HDD spoils would be stored in fixed-angle storage tanks within the HDD work areas. Used drilling fluid would be transported offsite to an appropriate upland sanitary land fill. The wetland and riparian habitats to be temporarily impacted by the proposed project would be revegetated with wetland and riparian species and monitored, as required by local, state, and federal project authorizations. Revegetation work would be consistent with a Revegetation Plan to be submitted to and approved by appropriate agencies prior to commencement of project activities.

SECTION 6. LOCAL LAND USE AND PLANNING POLICIES AND REGULATIONS

the Additional state and local natural resource conservation and land use plans are applicable to the proposed project; these ordinances, laws, and plans are discussed below.

6.1 2010 Monterey County General Plan

In October 2010, the Monterey County Planning Commission adopted the updated 2010 Monterey County General Plan (2010 General Plan). This 2010 General Plan includes policies that address the existing and future land use within the County. It is of note that the 2010 General Plan does not amend and is not intended to outrank the measures within the Carmel LUP (i.e., the County's coastal zone is managed by the Monterey County LCP, and the four approved LUPs therein). This approach to local land use policy recognizes that the coastal zone is a distinct and valuable natural resource which requires unique planning considerations and may require different standards and policies than may apply in the non-coastal areas of the County.

6.2 Monterey County Tree Ordinance

Pursuant to the Monterey County Oak Protection Ordinance, the removal of trees that have been designated as "protected" requires a permission from the County Planning Department. With regard to the proposed project, protected trees include oak trees that are six inches or more in diameter at two feet above ground level. While a complete tree survey has not been conducted on the project site to date, and as such, impacts to protected trees have not been calculated, there is potential for unavoidable impacts to protected trees associated with implementation of the proposed project. *These impacts can be reduced to a level considered less than significant with implementation of Regulatory Authorizations and AMMs presented in Section 7, and Mitigation Measure BIO-1b, below.*

6.3 Carmel River Mitigation Bank

In 1996, Caltrans established the 43-acre Carmel River Mitigation Bank (mitigation bank) within what is now the Carmel River Lagoon for the purpose of planning and providing compensation for similar impacts and unavoidable losses from transportation impacts (i.e., advance compensation). Caltrans and State Parks conducted restoration and enhancement work to restore the lagoon through conversion of the agricultural lands back to wetlands and riparian forest. The project site is partially located within the mitigation bank. In accordance with the Mitigation Banking Instrument for the Carmel River Mitigation Bank, remediation required as a result of project-related adverse impacts to resources within the mitigation bank are the responsibility of the CAWD and would be enforced through regulatory permits and authorizations (Caltrans 1996). *These impacts can be reduced to a level considered less than significant with implementation of AMMs and Regulatory Authorizations presented in section 7, and Mitigation Measure BIO-1b, below.*

SECTION 7. IMPACTS, MONITORING PLANS, AVOIDANCE MEASURES, AND MITIGATION

In accordance with Appendix G of the State CEQA Guidelines, project-related impacts would be considered significant if the proposed project would result in one or more of the following effects:

a. have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS; or
b. have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by CDFW or USFWS; or
c. have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means; or
d. interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites; or
e. conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Potential impacts associated with implementation of the proposed project are addressed below. With implementation of the recommended avoidance and minimization measures as well as the specific recommended mitigation measures, all project-related impacts to natural resources can be reduced to a level considered less than significant.

7.1 ENVIRONMENTAL MONITORING PLANS

The outlined natural environment monitoring plans and control measures shall be incorporated into the proposed project's contract documents to ensure protection of the environment. Control measures are procedures known to reduce the potential for impacts based on regulatory agency requirements, standards in the industry, and construction/operating experiences of the contractor and the design engineer.

7.1.1 Stormwater Pollution Prevention Plan

Construction activities that disturb 1 acre or more of soil or whose projects disturb less than 1 acre but are part of a larger common plan of development that in total disturbs one or more acres, are required to obtain coverage under the General Permit for Discharges of Storm Water Associated with Construction Activity Construction General Permit Order 2009-0009-DWQ (Construction General Permit). The Construction General Permit requires the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. The SWPPP shall describe the BMPs to address potential stormwater runoff impacts from construction activities.

7.1.2 Habitat Restoration Plan

A habitat restoration plan for areas of temporary disturbance shall be prepared and submitted to relevant natural resource agencies prior to project initiation. This plan shall be developed in coordination with the relevant natural resource agencies, and shall include, but not be limited to the following:

a. a plan for revegetating areas of temporary disturbance within the project site;

b. a plan to control invasive, exotic plants to the maximum extent practicable;

c. a plan to monitor the success of revegetation efforts; and

d. a reporting schedule to submit documentation of revegetation success to relevant natural resource agencies.

7.1.3 Frac-Out Plan

A frac-out contingency plan shall be prepared and submitted to relevant natural resource agencies prior to project initiation. This plan shall be developed in coordination with the relevant natural resource agencies, and shall include, but not be limited to the following:

a. measures employed to prevent frac-out;

b. measures to be employed in case of frac-out; and

c. a plan for drilling fluid management.

7.2 AVOIDANCE AND MINIMIZATION MEASURES

7.2.1 General Avoidance and Minimization Measures

During construction, measures shall be implemented to mitigate temporary construction impacts on the environment and surrounding community, including engineering controls and/or operational BMPs. A construction oversight program shall be implemented to guide and monitor the implementation of construction controls. The oversight program shall include elements such as biological surveys, where required, and monitoring of potential environmental impacts, including water quality/turbidity monitoring during in-water activities.

1) Dust/Sediment Control:

   a. Earthmoving or other dust-producing activities shall be suspended during periods of high winds.

   b. All exposed or disturbed soil surfaces shall be watered at least twice daily to control dust as necessary.

   c. Stockpiles of soil or other materials that can be blown by the wind shall be watered or covered. Trenched fiber rolls shall be installed around the base of stockpiles. Stockpiles shall only be placed in the staging areas.

d. All trucks hauling soil, sand, and other loose materials shall be covered and all trucks shall be required to maintain at least two feet of freeboard.

e. All paved access roads, parking areas, staging areas, and residential streets adjacent to the construction sites shall be swept daily (with water sweepers) and all construction exits shall be stabilized to prevent tracking.

2) Best Management Practices: Every reasonable precaution to protect listed species and EFH-protected species and their habitat(s) from construction-related impacts and/or by-products and pollutants such as debris, construction chemicals, or other deleterious materials shall be exercised. Construction would be conducted from both land and water. Care shall be used by equipment operators to control debris so that it does not enter WOTUS.

Measures to be implemented shall include, but shall not be limited to, the following:

- All food-related trash items such as wrappers, cans, bottles, and food scraps shall be disposed of in closed containers and removed at least once a day from the project site.
- No firearms shall be allowed within the project site except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.
- Project personnel shall not be permitted to have dogs or cats within the project site.
- Project personnel shall not be permitted to smoke within the project site.
- All construction material, wastes, debris, sediment, rubbish, trash, fencing, site stabilization materials, etc., shall be removed from the site once the proposed project is completed and transported to an authorized disposal area, as appropriate, in compliance with applicable federal, state, and local laws and regulations.
- Construction material shall be covered every night and during any rainfall event.
- Construction crews shall reduce the amount of disturbance within the project site to the minimum necessary to accomplish the project.
- All staging, maintenance, and storage of construction equipment shall be performed in a manner to preclude any direct or indirect discharge of fuel, oil, or other petroleum products into waters of the U.S./State or special-status habitats (i.e., riparian woodland). No other debris, rubbish, creosote-treated wood, soil, silt, sand, cement, concrete or washings thereof, or other construction-related materials or wastes shall be allowed to enter into or be placed where they may be washed by rainfall or runoff into waters of the U.S./State. All such debris and waste shall be picked-up daily and properly disposed of at an appropriate site.

3) Spill Response Plan: Prior to the onset of work, a plan shall be in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures should a spill occur.

7.2.2 Habitat Protection Measures

1) Pesticide Use: No pesticides of any kind shall be used within the project site at any time during project implementation, with the exception of pre-authorized herbicide application to prevent the spread of the invasive pampas grass currently occurring within the project site.

2) Invasive Plants: All equipment including excavators, trucks, hand tools, etc., that may have come in contact with invasive plants or the seeds of these plants, shall be carefully cleaned before arriving on the site and shall also be carefully cleaned before removal from the site to prevent spread of these plants.

3) Vegetation Removal: Disturbance or removal of vegetation shall not exceed the minimum necessary to complete construction.

4) Post-Construction Site Conditions: Site conditions shall be returned to pre-construction contours and shall be revegetated with native habitat-appropriate species.

7.2.3 Aquatic Resource Protection Measures

1) In-water Equipment: No equipment shall be operated in areas of flowing or standing water. No fueling, cleaning, or maintenance of vehicles or equipment shall take place within any areas where an accidental discharge to WOTUS or special-status habitats (i.e., riparian woodland) may occur. Handheld power tools are acceptable for in water work.

2) Turbidity: To protect water quality during pipeline removal activities, permeable turbidity curtains long enough to enclose the work area while not dragging on the bottom of the lagoon shall be installed around the pipeline removal work locations. To maintain fish passage and water flow, turbidity curtains shall not be installed across the entire lagoon. Rather, curtains shall be moved as dismantling activities progress, encircling the work location. Curtains shall not be moved until silt settles out of the water column and the water column returns to pre-construction conditions.

3) Site Stabilization and Wetland Protection: During pipeline removal activities, the pedestrian trail on the west side of the lagoon shall be stabilized with plywood, rubber mats, or similar material. The perennial and seasonal wetlands on the maintenance road east of the lagoon shall be protected using 2-inch thick perforated HDPE mats. The proposed mats shall be open-celled and interlocking. These mats would protect wetlands and facilitate vehicular access.

4) Water Quality Monitoring: A water quality inspector will inspect the site before and after a qualifying rain event to ensure that stormwater BMPs are adequate. A qualifying rain event is defined to be any storm that produces or is forecasted to produce at least 0.50 inch of precipitation at the time of discharge, with a 72-hour dry period between events. Turbidity monitoring will be performed during pipeline dismantling activities to document changes in turbidity.

7.2.4 Special-Status Species Protection Measures

1) Worker Environmental Awareness Training: All construction personnel (hereinafter referred to as personnel) shall attend a mandatory environmental education program facilitated by an

approved biologist prior to the initiation of construction activities. Training sessions shall be repeated for all new personnel before they are allowed access to the job site. All personnel shall complete the training and sign a form stating that they completed the training and understand all applicable agency regulations and consequences of non-compliance. CAWD shall keep the forms on file and make them available to the regulatory agencies upon request.

2) Vehicle Restrictions: To minimize harassment, injury, death, and harm in the form of temporary habitat disturbances, all project-related vehicle traffic shall be restricted to established roads, construction areas, equipment staging, parking, and stockpile areas.

3) Limited Access Routes and Construction Areas: The number of access routes, size of staging areas, and the total area of the activity shall be limited to the minimum necessary to achieve the project goals. Environmentally Sensitive Areas shall be delineated to confine access routes and construction areas to the minimum area necessary to complete construction, and minimize the impact to special-status species habitat.

4) Wildlife Exclusion Fencing:

   a. The work areas shall be delineated with wildlife exclusion fencing in order to minimize impacts to habitat beyond the work limit. A biological monitor shall supervise the installation of protective fencing and shall conduct preconstruction inspections of the fencing daily until construction is complete to ensure that the protective fencing remains intact. Orange cyclone fencing, or other materials that can entrap small amphibians and reptiles and other special - status species, shall not be used.

   b. Prior to the date of initial ground disturbance, equipment staging areas and work areas would be identified, surveyed by an approved biologist, and clearly delineated. Fencing would consist of 3-foot silt fencing that is trenched into the soil to a depth of 6 inches, and installed such that it angles away from the project site in an approximately 30% angle (either the entire fence profile or the top 12 inches). The fencing would be inspected by the approved biologist immediately after installation and maintained daily by the project proponent until the last day that construction equipment is at the project site.

5) Daily Preconstruction Surveys: Prior to commencement of work each day, the biological monitor shall check for animals under any equipment such as vehicles and stored pipes. In order to prevent inadvertent entrapment of terrestrial wildlife during the proposed project, all excavated, steep-walled holes or trenches more than 2 feet deep shall be covered at the close of each working day by plywood or similar materials. Alternatively, an additional 2-foot high vertical barrier, independent of exclusionary fences, may be used to further prevent the inadvertent entrapment of terrestrial wildlife. If it is not feasible to cover an excavation or provide an additional 2-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks shall be installed. Before such holes or trenches are filed, they shall be thoroughly inspected for trapped animals.

6) Biological Construction Monitoring: An approved biologist(s) shall be onsite during all work within the south arm of the Carmel River Lagoon and during all activities that could result in

impacts to special-status species. The approved biologist shall have the authority to stop any work that may result in adverse impacts to special-status species. If determined to be necessary for project implementation and wildlife safety, only approved biologists shall capture, handle, and monitor special-status species observed onsite. Otherwise, all wildlife shall be allowed to leave the site of their own accord.

7) Marine Mammal Work Buffer: A 10-meter buffer will be established around all work conducted in/over the Carmel River Lagoon navigable waters. If a marine mammal comes within 10 meters of this work, all operations will cease until the marine mammal has left the buffer of its own volition.

8) Work Windows: Construction activities would be scheduled in a manner predicated on the presence/absence of biological and aquatic resources

   a. All project-related ground moving activities within a 100-foot buffer directly east and west of the Lagoon shall be restricted to between June 15th to October 31st.

   b. With the exception of site preparation activities, construction activities shall be restricted to between May 1st to October 31st within California red-legged frog habitat on the east side of the lagoon.

9) Vegetation Removal: All vegetation which obscures the observation of wildlife movement within the impact areas shall be completely removed by hand just prior to the initiation of ground moving activities to remove cover that might be used by listed species. The approved biologist shall survey these areas immediately prior to vegetation removal to find, capture and relocate any observed listed species, as approved by the Service.

7.3 REGULATORY AUTHORIZATIONS

Protected fish species use the Carmel River during various life stages and are known to occur within the Carmel River Lagoon. Protected amphibian species have been recorded as occurring throughout the central (Carmel River Lagoon) and eastern portion of the project site. The proposed project would include placement of temporary fill within WOTUS and the Carmel Area Land-Use Plan.

Preparation and implementation of the above Environmental Monitoring Plans and avoidance and minimization measures, in addition to agency consultation and compliance with project authorization issued by applicable regulatory agencies would reduce these impacts to special-status species, as well as protected habitats to a level considered less than significant pursuant to the CEQA. Prior to project commencement, agency consultation and authorization from applicable local (e.g., Monterey County), state (e.g. RWQCB, CCC, and CDFW), and federal agencies (e.g. USACE, NMFS, and USFWS) charged with overseeing potential impacts to special-status species, habitats, and resources shall be secured. All terms and/or conditions (e.g., monitoring, reporting, timing, and work limits) established within the agency consultations and authorizations shall be fully implemented. Any identified compensatory mitigation shall be completed consistent with agency consultation and authorization requirements.

7.4 BIOLOGICAL IMPACT 1: PROTECTED PLANTS/TREES [LESS THAN SIGNIFICANT WITH MITIGATION]

While no special-status plant species were observed on the project site during the 2017 or 2020 floristic surveys investigation, rare plant surveys were not conducted throughout the entire project site. In the absence of protocol-level rare plant surveys on the project site, the proposed project may result in adverse impacts to special-status plants. The project would also impact special status trees. Impacts to special-status trees and plants would be considered a significant adverse impact, pursuant to the CEQA. Impacts to special-status trees and plants would be considered a significant adverse impact, pursuant to the CEQA. The mitigation measures presented below would reduce these impacts to a level considered less than significant pursuant to the CEQA.

7.4.1 Mitigation Measure BIO-1a

In the Spring and Summer immediately prior to project implementation, protocol-level rare plant surveys shall be conducted on the project site. Rare plant surveys shall be conducted by a qualified botanist, in accordance with all applicable survey guidelines including those published by USFWS (USFWS 1996), CDFW (CDFW 2000, 2009) and CNPS (CNPS 2001). If determined to be necessary, reference site surveys shall be conducted to confirm plant phenology (flowering periods).

7.4.2 Mitigation Measure BIO-1b

A County-approved arborist shall conduct a tree survey of the eastern HDD work area to document all existing trees and to determine impacts to trees that are protected by the County's tree ordinance as well as those that are protected due to their location within the riparian canopy (CDFW jurisdiction). Information regarding protected oak trees shall be compiled in a tree survey report and submitted to the County. Information regarding riparian canopy impacts shall be provided to CDFW and the Central Coast RWQCB. It is likely that tree replacement will be required to mitigate impacts from the removal of protected trees; this replacement ratio shall be determined in coordination with the County and CDFW.

7.5 BIOLOGICAL IMPACT 2: PROTECTED AMPHIBIANS AND REPTILES [LESS THAN SIGNIFICANT WITH MITIGATION]

The project site provides suitable habitat for breeding, foraging, migrating, and oversummering special-status amphibian and reptile species known to occur locally, including black legless lizard, California red-legged frog, coast range newt, Northern California legless lizard, and western pond turtle. Further, California red-legged frog and western pond turtle have been documented on the project site. Project implementation could result in adverse impacts to these species. Impacts to special-status amphibians and reptiles would be considered a significant adverse impact, pursuant to the CEQA. The mitigation measures presented below would reduce these impacts to a level considered less than significant pursuant to the CEQA.

7.5.1 Mitigation Measure BIO-2

An approved biologist shall conduct a preconstruction survey of the project site no more than 48 hours before the onset of work activities. If the approved biologist finds any life stage of special-status

amphibian or reptile species, and these individuals are likely to be killed or injured by work activities, the approved biologist shall move them from the site before work begins. The approved biologist shall relocate the individuals the shortest distance possible to a location that contains suitable habitat and that will not be affected by activities associated with the proposed project. The relocation site shall be in the same drainage to the extent practicable.

7.6 BIOLOGICAL IMPACT 3: PROTECTED INVERTEBRATES [LESS THAN SIGNIFICANT WITH MITIGATION]

The coastal scrub habitat on the project site provides potentially suitable habitat for Smith's blue butterfly and its obligate host plants. In the absence of thorough botanical surveys, the presence of Smith's blue butterfly host plants and the presence of Smith's blue butterfly cannot be ruled out. Impacts to Smith's blue butterfly would be considered a significant adverse impact, pursuant to the CEQA. The mitigation measures presented below would reduce these impacts to a level considered less than significant pursuant to the CEQA.

7.6.1 Mitigation Measure BIO-3a

During protocol-level rare plant surveys conducted on the project site, a qualified botanist shall also search for Smith's blue butterfly host plant species. If Smith's blue butterfly host plants are observed on the project site, temporary protective fencing or flagging would be installed around any Smith's blue butterfly host plants if found within vegetation clearing areas. To the extent practical, fencing would be installed to create a buffer of 20 feet around each plant. The approved biologist would monitor installation of protective fencing/flagging prior to clearing of vegetation.

7.6.2 Mitigation Measure BIO-3b

If construction activities are scheduled to occur during the June 15 to September 15 flight season, the approved biologist shall conduct SBB surveys at the beginning and end of flight season. Additionally, an approved biologist shall survey for SBB during preconstruction surveys, monitor for SBB during all activities that occur within 300-feet of a SBB host plant during the flight season, and stop any work that may result in take of SBB.

7.7 BIOLOGICAL IMPACT 4: NESTING BIRDS [LESS THAN SIGNIFICANT WITH MITIGATION]

The trees, shrubs, and tall and dense wetland vegetation on the project site provide suitable nesting habitat for nesting birds and raptors protected pursuant to the Migratory Bird Treaty Act and California Fish and Game Code, Sections 3503, 3503.5, and 3511. Project-related activities could result in take of protected birds in the form of disturbance causing nest abandonment or destruction. Impacts to nesting birds and raptors would be considered a significant adverse impact, pursuant to the CEQA. The mitigation measures presented below would reduce these impacts to a level considered less than significant pursuant to the CEQA.

7.7.1 Mitigation Measure BIO-4

If vegetation removal or ground disturbance are scheduled to occur between February 15 and August 31, a preconstruction nesting bird survey of all suitable nesting habitat on the project site and within

the zone of influence (the area immediately surrounding the project site that supports suitable nesting habitat that could be impacted by the proposed project due to visual or auditory disturbance associated with the removal of vegetation and construction activities scheduled to occur during the nesting season) shall be conducted by a qualified biologist within 14 days prior to commencement of vegetation removal or ground disturbance. If no nesting birds are observed during the survey, the vegetation removal and/or ground disturbance may commence as planned. If nesting birds are observed during the survey, a non-disturbance buffer of 50 feet for passerine birds and 250 feet for raptors shall be established. This buffer shall remain in place until such a time as the young have been determined (by a qualified biologist) to have fledged.

Any birds that begin nesting within active work areas after construction has commenced shall be assumed to be habituated to construction-related noise and no work exclusion buffer shall be established around these active nests. However, if these birds begin to show disturbance associated with construction activities, a non-disturbance buffer shall be established as determined by an approved biologist.

7.8 BIOLOGICAL IMPACT 5: PROTECTED FISH [LESS THAN SIGNIFICANT WITH MITIGATION]

Protected fish species are known to occur within the Carmel River Lagoon and could potentially occur within the project site. As such, implementation of the proposed project has the potential to result in adverse impacts to protected fish species. The mitigation measures presented below would reduce these impacts to a level considered less than significant pursuant to the CEQA.

7.8.1 Mitigation Measure BIO-5

A turbidity curtain shall be installed surrounding the active in-water work area in order to isolate the in-water work area from the surrounding navigable waters and protect fish habitat from potential water quality impacts. Turbidity curtains shall only traverse one side of the shore at a time to allow aquatic species to continue to move from one end of the lagoon to the other.

7.9 BIOLOGICAL IMPACT 6: PROTECTED MAMMALS [LESS THAN SIGNIFICANT WITH MITIGATION]

Several Monterey dusky-footed woodrat nests have been observed on the project site; these woodrat nests occur within the footprint of the eastern work area and cannot be feasibly avoided. As such, implementation of the proposed project has the potential to result in adverse impacts to Monterey dusky-footed woodrat. Impacts to this California Species of Concern (woodrat) would be considered a significant adverse impact, pursuant to the CEQA. The mitigation measures presented below would reduce these impacts to a level considered less than significant pursuant to the CEQA.

7.9.1 Mitigation Measure BIO-6

Within 14 days prior to project-related activities that could impact Monterey dusky-footed woodrat, an approved biologist shall conduct a preconstruction survey to locate and map the locations of all currently existing Monterey dusky-footed woodrat nests on the project site as well as any evidence of Monterey dusky-footed woodrat activity (i.e., feces, urine stations, fresh sticks added to nest structures, used entryways under nest structures).

All Monterey dusky-footed woodrat individuals shall be protected from direct impacts associated with project-related activities through the installation of wildlife exclusion fencing around the perimeter of the work areas. All Monterey dusky-footed woodrat nests that are 10 feet or more outside of the work area boundaries shall be preserved and protected in place. All of the Monterey dusky-footed woodrat nests within the project site and within 10 feet of the work areas cannot be avoided by project-related activities and/or could incur indirect impacts due to proximity of project-related activities, and as such, they shall require relocation according to standard woodrat nest relocation procedures, in consultation with CDFW.

7.10 BIOLOGICAL IMPACT 7: AQUATIC RESOURCES [LESS THAN SIGNIFICANT WITH MITIGATION]

The implementation of the proposed project would result in temporary impacts to a total of approximately 0.26 acre of WOTUS. Temporary impacts would be incurred to 0.11 acre of seasonal wetland, 0.09 acre of perennial wetland, and 0.06 acre of navigable waters. HDD methods necessitate boring below the Carmel River Lagoon, which could result in frac-out along the bore path. Adverse impacts to WOTUS would be considered a significant adverse impact, pursuant to the CEQA. The mitigation measures presented below would reduce these impacts to a level considered less than significant pursuant to the CEQA.

7.10.1 Mitigation Measure BIO-7

All impacts to waters of the U.S. shall be temporary and result in no net loss. In locations where wetlands would be temporarily impacted to facilitate construction access, appropriate BMPs (e.g., open-celled, interlocking construction mats) shall be placed over the wetland. Following construction activities, all temporary fill shall be removed. All temporarily impacted wetlands shall be replanted, if necessary, with appropriate native vegetation.

SECTION 8. REFERENCES

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LIST OF FIGURES

CRFREE Mitigation Pipeline Undergrounding Project

Figure 1. Project Site and Vicinity Map

Legend

Project Site

JOHNSON MARIGOT CONSULTING, LLC

Imagery Source: ESRI
Map Created on: 10/14/20
by S. McGarvey

0 1 2 3
Miles

N

CRFREE Mitigation Pipeline Undergrounding Project

Figure 2. Site Map

Legend

Project Site

0 150 300 450 600

Feet

N

JOHNSON MARIGOT CONSULTING, LLC

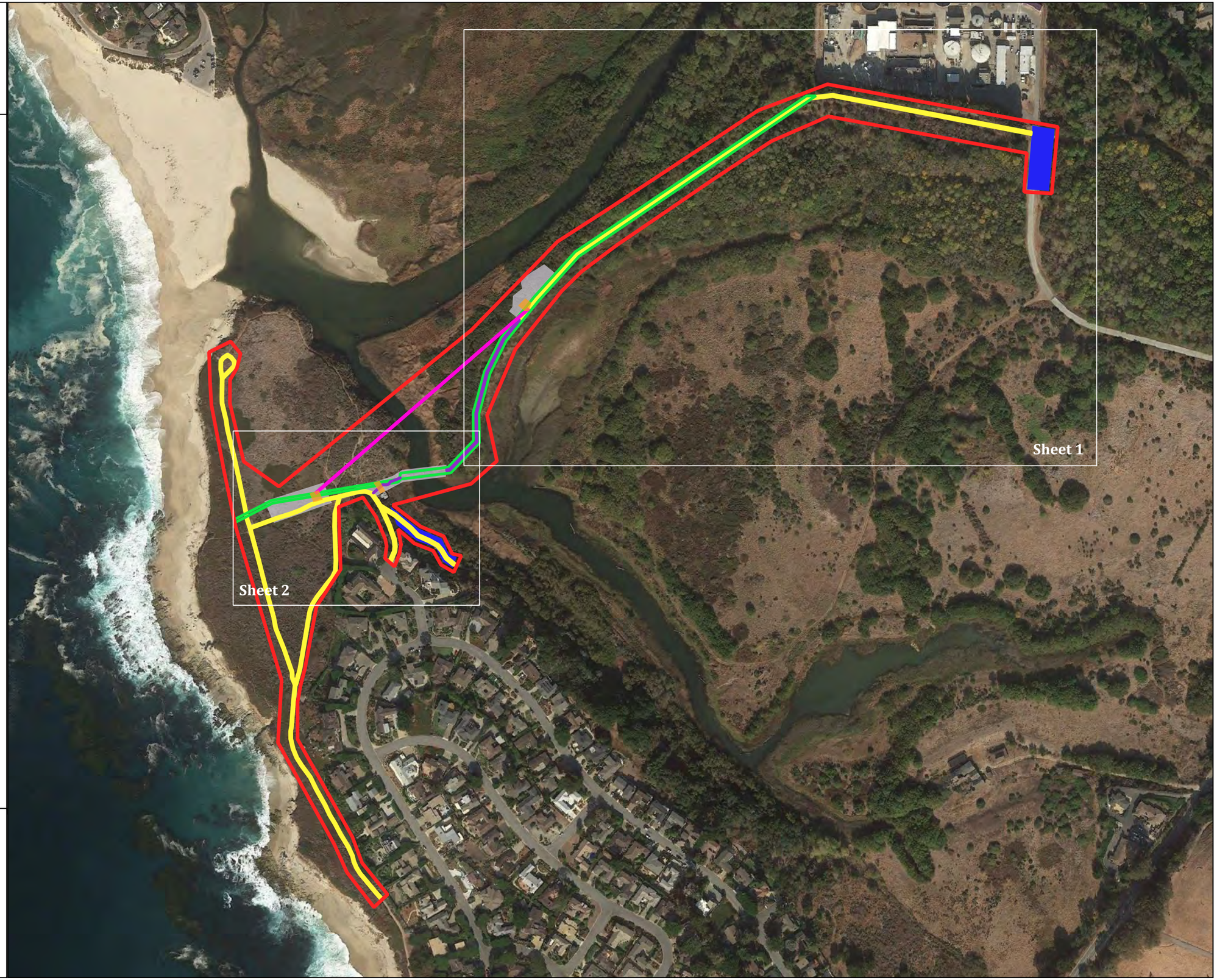
Imagery Source: ESRI
Map Created on: 10/14/20
by S. McGarvey

Calle La Cruz Force Main Replacement Project

Figure 3a. Project Layout

Legend

- Project Site
- Staging Areas
- Work Areas
- Ground Disturbance Area
- Existing Pipeline Easement/Footprint
- New Pipeline - HDD Force Main & Outfall
- Access Road
- Pedestrian Trail



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Feet

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JOHNSON MARIGOT CONSULTING, LLC

Imagery Source: ESRI
Map Created on: 11/11/20
by S. McGarvey

Calle La Cruz Force Main Replacement Project

Figure 3b. Project Layout - Eastern Side of Action Area

Legend

- Project Site
- Staging Areas
- Work Areas
- Ground Disturbance Area
- Existing Pipeline Easement/Footprint
- New Pipeline - HDD Force Main & Outfall
- Access Road
- Pedestrian Trail

0 75 150 225 300

Feet

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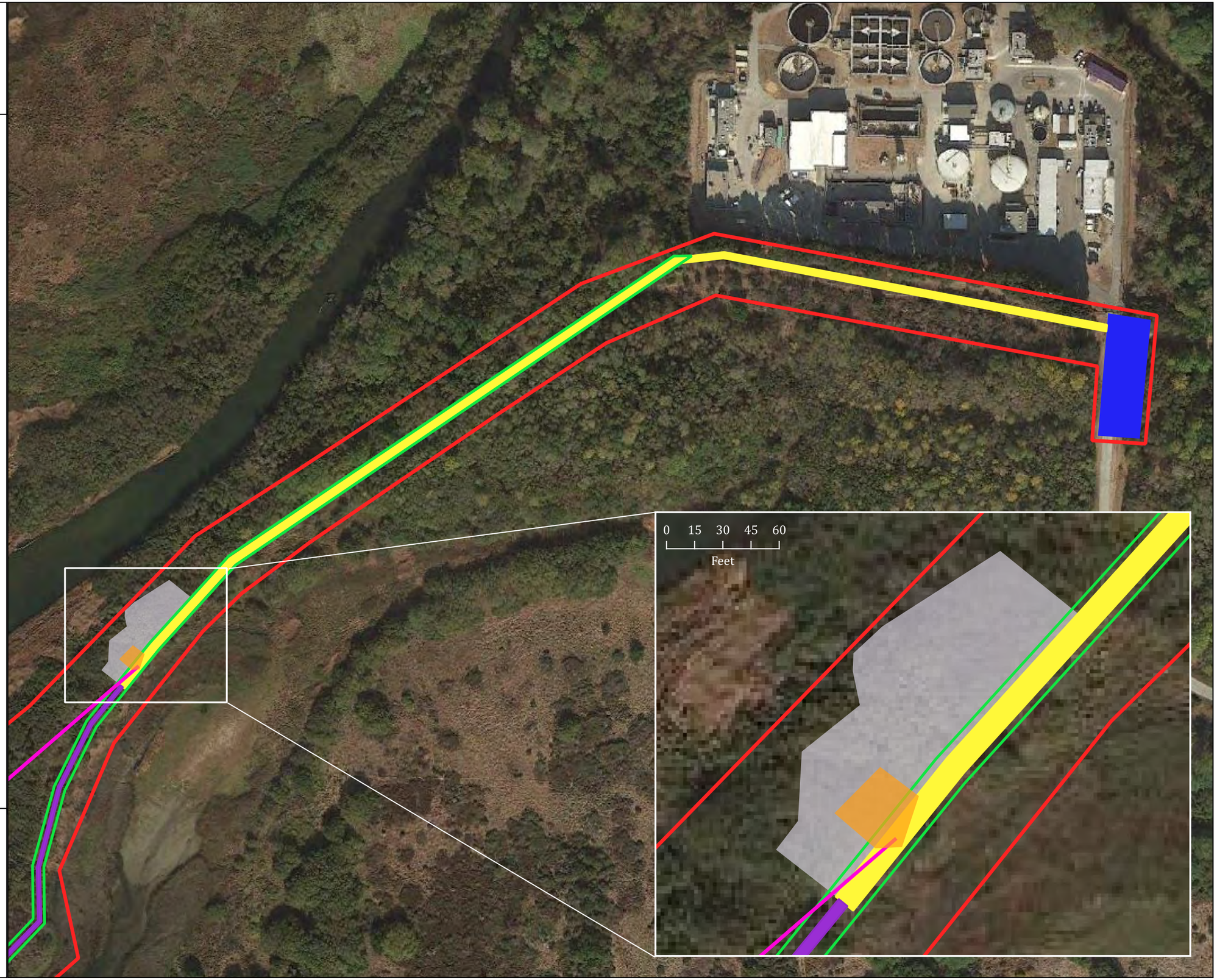
JOHNSON MARIGOT CONSULTING, LLC

Imagery Source: ESRI
Map Created on: 11/11/20
by S. McGarvey



Calle La Cruz Force Main Replacement Project

Figure 3c. Project Layout - Western Side of Action Area

Legend

- Project Site
- Staging Areas
- Work Areas
- Ground Disturbance Area
- Existing Pipeline Easement/Footprint
- New Pipeline - HDD Force Main & Outfall
- Access Road
- Pedestrian Trail

0 25 50 75 100

Feet

N

JOHNSON MARIGOT CONSULTING, LLC

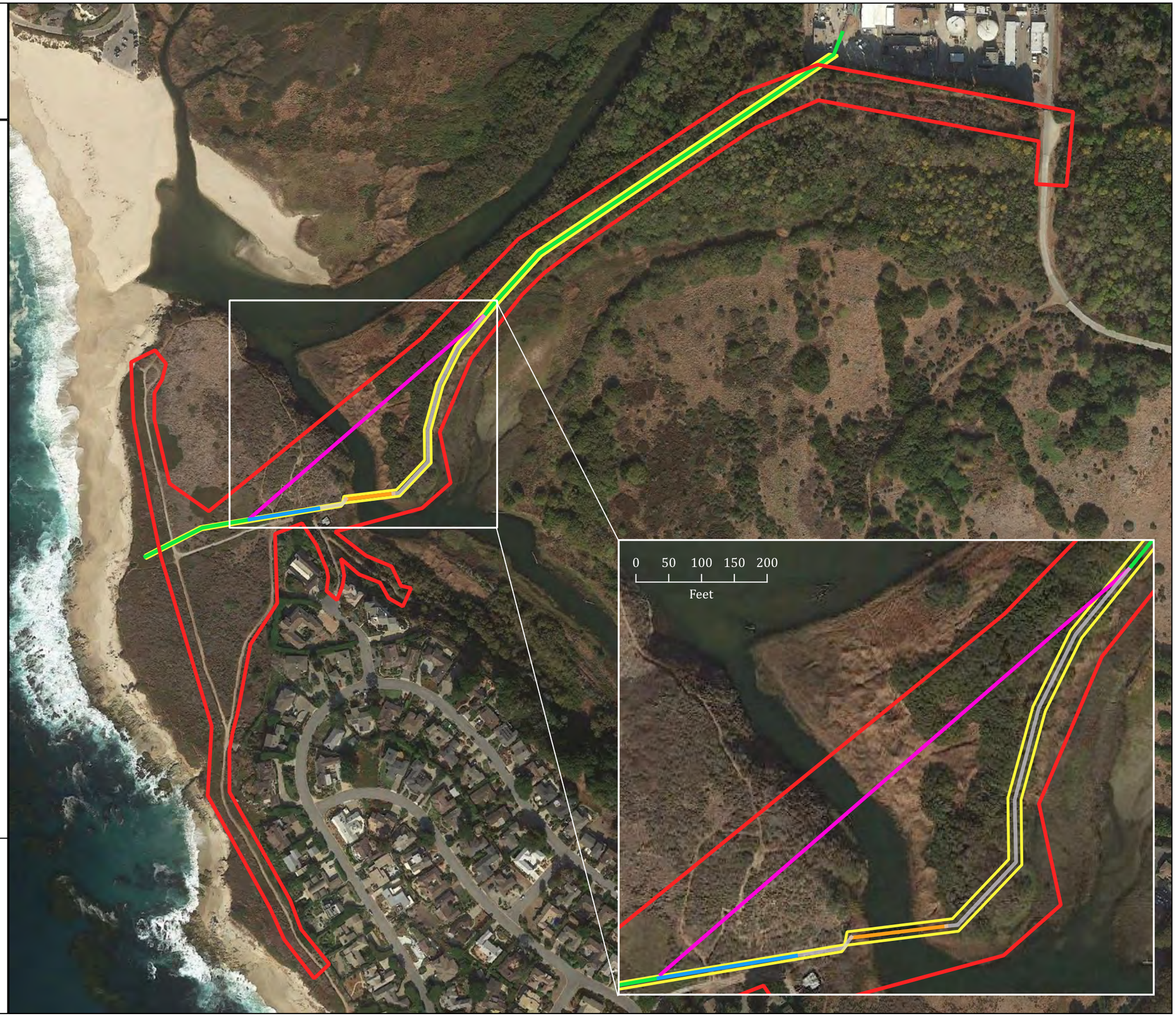
Imagery Source: ESRI
Map Created on: 11/11/20
by S. McGarvey

Calle La Cruz Force Main Replacement Project

Figure 4. Pipeline Easement/Footprint & Lagoon Crossing Structure

Legend

- Project Site
- Existing Pipeline Easement/Footprint
- New Pipeline - HDD Force Main & Outfall
- New Pipeline - Force Main Slip Lined in 24-inch Outfall
- Existing Lagoon Crossing Structure - Removed
- Existing Pipelines - Abandoned in Place
- Existing Pipelines - Retained



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Feet

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JOHNSON MARIGOT CONSULTING, LLC

Imagery Source: ESRI
Map Created on: 11/06/20
by S. McGarvey

CRFREE Mitigation Pipeline Undergrounding Project

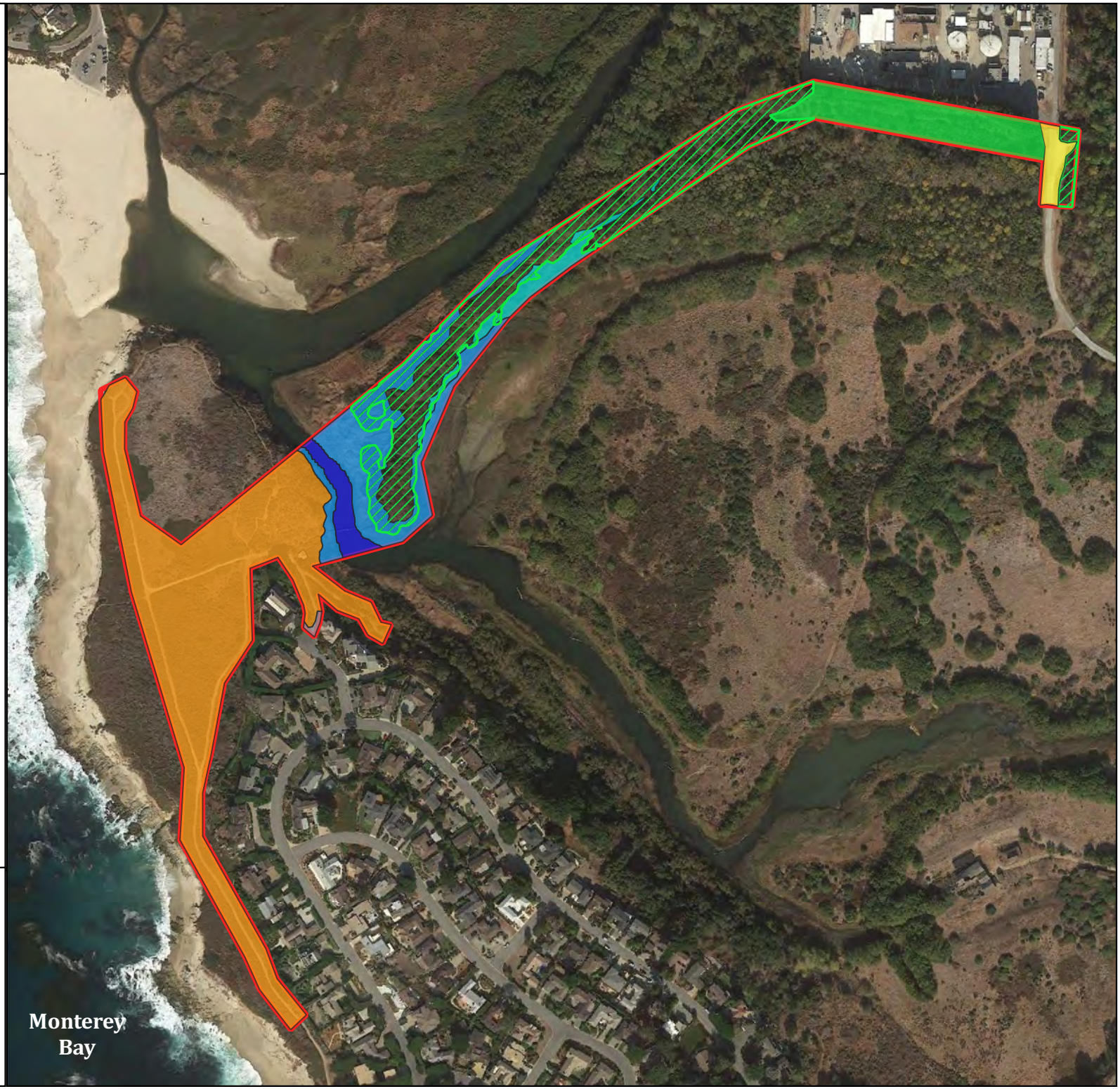
Figure 6. Vegetation Communities

Legend

Project Site

Vegetation Community Types

- Barren
- Coastal Scrub
- Estuarine
- Fresh Emergent Wetland
- Saline Emergent Wetland
- Urban
- Valley Foothill Riparian
- Disturbed Valley Foothill Riparian



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Feet

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JOHNSON MARIGOT CONSULTING, LLC

Imagery Source: ESRI
Map Created on: 12/07/20
by S. McGarvey

LIST OF APPENDICES

Appendix A.

Table A. Special-Status Plants Known to Occur in the Vicinity of the CRFREE Mitigation Pipeline Undergrounding Project Site

Scientific Name	Common Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Allium hickmanii	**Hickman's Onion**	CNPS Rank 1B.2	Closed-cone coniferous forest, maritime chaparral, coastal prairie, coastal scrub, and valley and foothill grassland	The closest record for this species occurs approximately 0.7 mile northeast of the project site (CNDDB Occurrence No. 5).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Arctostaphylos hookeri* ssp. *hookeri	**Hooker's Manzanita**	CNPS Rank 1B.2	Sandy soils in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub	The closest record for this species occurs approximately 1.2 miles south of the project site (CNDDB Occurrence No. 15).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Arctostaphylos pumila	**Sandmat Manzanita**	CNPS Rank 1B.2	Sandy openings in closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub	An historic record (early 1900s) for this species occurs in the vicinity of the project site (CNDDB Occurrence No. 12). Exact location unknown. This record is presumed possibly extirpated.	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Arenaria paludicola	**Marsh Sandwort**	Federally Endangered California Endangered CNPS Rank 1B.1	Sandy openings in marshes and swamps	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**Low.** The eastern portion of the project site provides potentially suitable habitat for this species.
Astragalus tener* var. *titi	**Coastal Dunes Milk-Vetch**	Federally Endangered California Endangered CNPS Rank 1B.1	Sandy soils in coastal bluff scrub, coastal dunes, and mesic coastal prairie (often vernally mesic)	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Bryoria spiralifera	**Twisted Horsehair Lichen**	CNPS Rank 1B.1	North Coast coniferous forest	A 1988 occurrence of this species was recorded in the vicinity of the project site (CNDDB Occurrence No. 4) "near Point Lobos".	**None.** No suitable habitat occurs within or adjacent to the project site.
Castilleja ambigua* ssp. *insalutata	**Pink Johnny-Nip**	CNPS Rank 1B.1	Coastal prairie and coastal scrub	An historic record (1962) for this species occurs approximately 1.5 miles southwest of the project site (CNDDB Occurrence No. 6).	**Low.** The western portion of the project site comprised of coastal scrub habitat.

Scientific Name	Common Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Chorizanthe pungens* var. *pungens	**Monterey Spineflower**	Federally Threatened CNPS Rank 1B.2	Sandy soils in cismontane woodland, maritime chaparral, coastal dunes, coastal scrub, and valley and foothill grassland	The closest record for this species occurs approximately 1.5 miles southwest of the project site (CNDDB Occurrence No. 45).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Clarkia jolonensis	**Jolon Clarkia**	CNPS Rank 1B.2	Chaparral, cismontane woodland, coastal scrub, and riparian woodland	An historic record (1903) for this species occurs in the vicinity of the project site (CNDDB Occurrence No. 15). Exact location unknown.	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Collinsia multicolor	**San Francisco Collinsia**	CNPS Rank 1B.2	Closed-cone coniferous forest and coastal scrub. Sometimes serpentinite	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Cordylanthus rigidus* ssp. *littoralis	**Seaside Bird's-Beak**	California Endangered CNPS Rank 1B.1	Sandy soils in closed-cone coniferous forest, maritime chaparral, cismontane woodland, coastal dunes, and coastal scrub. Often at disturbed sites	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Delphinium hutchinsoniae	**Hutchinson's Larkspur**	CNPS Rank 1B.1	Broadleafed upland forest, chaparral, coastal prairie, and coastal scrub	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Delphinium umbraculorum	**Umbrella Larkspur**	CNPS Rank 1B.3	Chaparral and cismontane woodland	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**None.** No suitable habitat occurs within or adjacent to the project site.
Ericameria fasciculata	**Eastwood's Goldenbush**	CNPS Rank 1B.1	Sandy openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub	Multiple historic records (1889-1913) for this species occur in the vicinity of the project site (CNDDB Occurrence No. 8). Exact location unknown.	**Low.** The western portion of the project site comprised of coastal scrub habitat.

Scientific Name	Common Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Eriogonum nortonii	**Pinnacles Buckwheat**	CNPS Rank 1B.3	Sandy soils in chaparral and valley and foothill grassland. Often at recently burned sites	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Erysimum menziesii	**Menzie's Wallflower**	Federally Endangered California Endangered CNPS Rank 1B.1	Coastal dunes	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** Suitable habitat occurs adjacent to the project site.
Fritillaria liliacea	**Fragrant Fritillary**	CNPS Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, and valley and foothill grassland. Often serpentinite	An historic record (1940) for this species occurs in the vicinity of the project site (CNDDB Occurrence No. 5). Exact location unknown.	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Gilia tenuiflora* ssp. *arenaria	**Monterey Gilia**	Federally Endangered California Threatened CNPS Rank 1B.2	Sandy openings in chaparral (maritime), cismontane woodland, coastal dunes, and coastal scrub	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Hesperocyparis goveniana (formerly *Cupressus goveniana*)	**Gowen Cypress**	Federally Threatened CNPS Rank 1B.2	Closed-cone coniferous forest and maritime chaparral	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**None.** No suitable habitat occurs within or adjacent to the project site.
Hesperocyparis macrocarpa	**Monterey Cypress**	CNPS Rank 1B.2	Closed-cone coniferous forest	The closest record for this species occurs approximately 1.5 miles southwest of the project site (CNDDB Occurrence No. 1).	**None.** No suitable habitat occurs within or adjacent to the project site.
Horkelia cuneata* ssp. *sericea	**Kellogg's Horkelia**	CNPS Rank 1B.1	Sandy or gravelly openings in closed-cone coniferous forest, maritime chaparral, coastal dunes, and coastal scrub	An historic record (1896) for this species occurs in the vicinity of the project site (CNDDB Occurrence No. 15). Exact location unknown.	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Layia carnosa	**Beach Layia**	Federally Endangered California Endangered CNPS Rank 1B.1	Coastal dunes and sandy coastal scrub	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.

Scientific Name	Common Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Lupinus tidestromii	**Tidestrom's Lupine**	Federally Endangered California Endangered CNPS Rank 1B.1	Coastal dunes	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** Suitable habitat occurs adjacent to the project site.
Malacothamnus palmeri* var. *involucratus	**Carmel Valley Bush-Mallow**	CNPS Rank 1B.2	Chaparral, cismontane woodland, and coastal scrub	An historic record (1955) for this species occurs approximately 2.6 miles east of the project site (CNDDB Occurrence No. 30). Exact location is unknown.	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Malacothrix saxatilis* var. *arachnoidea	**Carmel Valley Malacothrix**	CNPS Rank 1B.2	Rocky chaparral and coastal scrub	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Meconella oregana	**Oregon Meconella**	CNPS Rank 1B.1	Coastal prairie and coastal scrub	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Microseris paludosa	**Marsh Microseris**	CNPS Rank 1B.2	Closed-cone coniferous forest, cismontane woodland, coastal scrub, and valley and foothill grassland	An historic (1901) record for this species occurs in the vicinity of the project site (CNDDB Occurrence No. 4). Exact location unknown.	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Monardella sinuata* ssp. *nigrescens	**Northern Curly-Leaved Monardella**	CNPS Rank 1B.2	Sandy soils in coastal dunes, coastal scrub, chaparral (in Santa Cruz Co.), and lower montane coniferous forest (in the ponderosa pine sandhills in Santa Cruz Co.)	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Monolopia gracilens	**Woodland Woolythreads**	CNPS Rank 1B.2	Serpentine soils in openings in broadleafed upland forest, chaparral, and North Coast coniferous forest. Also in cismontane woodland and valley and foothill grassland	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**None.** No suitable habitat occurs within or adjacent to the project site.

Scientific Name	Common Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Pinus radiata	**Monterey Pine**	CNPS Rank 1B.1	Closed-cone coniferous forest and cismontane woodland	The best estimate of the historic range of the species includes the area immediately surrounding the project site (CNDDB Occurrence No. 3).	**High.** This species has been observed on the project site.
Piperia yadonii	**Yadon's Rein Orchid**	Federally Endangered CNPS Rank 1B.1	Sandy soils in coastal bluff scrub, closed-cone coniferous forest, and maritime chaparral	The closest record for this species occurs approximately 0.7 mile northeast of the project site (CNDDB Occurrence No. 24).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Plagiobothrys uncinatus	**Hooked Popcornflower**	CNPS Rank 1B.2	Sandy chaparral, cismontane woodland, and valley and foothill grassland	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**None.** No suitable habitat occurs within or adjacent to the project site.
Potentilla hickmanii	**Hickman's Cinquefoil**	Federally Endangered California Endangered CNPS Rank 1B.1	Coastal bluff scrub, closed-cone coniferous forest, vernally mesic meadows and seeps, and freshwater marshes and swamps	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The western portion of the project site comprised of coastal scrub habitat.
Rosa pinetorum	**Pine Rose**	CNPS Rank 1B.2	Closed-cone coniferous forest and cismontane woodland	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**None.** No suitable habitat occurs within or adjacent to the project site.
Trifolium hydrophilum	**Saline Clover**	CNPS Rank 1B.2	Marshes and swamps, mesic and alkaline valley and foothill grassland, and vernal pools	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The project provides marginal habitat, however, no clover species of any kind have been observed during site surveys.
Trifolium polyodon	**Pacific Grove Clover**	California Rare CNPS Rank 1B.1	Mesic soils in closed-cone coniferous forest, coastal prairie, meadows and seeps, and valley and foothill grassland	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**Low.** The project provides marginal habitat, however, no clover species of any kind have been observed during site surveys.
Trifolium trichocalyx	**Monterey Clover**	Federally Endangered California Endangered CNPS Rank 1B.1	Sandy openings and burned areas in closed-cone coniferous forest	This species has been recorded on the same quad as the project site (CNPS 1-Quad Search - Monterey Quad).	**None.** No suitable habitat occurs within or adjacent to the project site.

Table B. Special-Status Wildlife Known to Occur in the Vicinity of the CRFREE Mitigation Pipeline Undergrounding Project Site

Common Name	Scientific Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Black Abalone	***Haliotis cracherodii***	Federally Endangered	Rocky intertidal and subtidal reefs along the California and Baja California coast	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Black Swift	***Cypseloides niger***	California Species of Special Concern	Builds nests on steep, rocky, often moist, cliffs.	The closest record for this species occurs approximately 1.5 miles southwest of the project site (CNDDB Occurrence No. 16) at Point Lobos State Reserve.	**None.** No suitable habitat occurs within or adjacent to the project site.
Blue Whale	***Balaenoptera musculus***	Federally Endangered MMPA Depleted and Protected	Open ocean, feed off the California coast during the summer	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
California Condor	***Gymnogyps californianus***	Federally Endangered California Endangered and Fully Protected	Lives in rocky shrubland, coniferous foreest, and oak woodland, nesting on cliffs or in large trees. Known populations in Big Sur and Pinnacles National Park.	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** No suitable nesting habitat occurs within or adjacent to the project site.
California Least Tern	***Sterna antillarum browni***	Federally Endangered	Nests in colonies on relatively open beaches, forage for fish in the open water of the San Francisco Bay	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** No suitable habitat occurs within or adjacent to the project site.
California Red-Legged Fog	***Rana draytonii***	Federal Threatened California Species of Special Concern	Grassland and riparian habitats, with creeks/streams with plunge pools, or wetlands/ponds	This species has been observed on the project site (CNDDB Occurrence No. 472).	**High.** Records for this species occur within and adjacent to the project site.
California Tiger Salamander	***Ambystoma californiense***	Federal Threatened California Threatened	Grasslands adjacent to sufficiently deep freshwater seasonal wetlands and ponds	The closest record for this species occurs approximately 1.5 miles southwest of the project site (CNDDB Occurrence No. 16).	**None.** No suitable habitat occurs within or adjacent to the project site.

Common Name	Scientific Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Coast Range Newt	***Taricha torosa torosa***	California Species of Special Concern	Grasslands, woodlands, and forests adjacent to ponds, reservoirs, and streams	The closest record for this species occurs approximately 2.4 miles southeast of the project site (CNDDB Occurrence No. 70).	**Low.** The project site provides suitable habitat for this species.
Fin Whale	***Balaenoptera physalus***	Federally Endangered	Deep, offshore waters, away from the coast.	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Green Sea Turtle - East Pacific DPS	***Chelonia mydas***	Federally Threatened	Nearshore as well as in bays and lagoons, on reefs, and especially in areas with seagrass beds in southern California and Mexico.	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Green Sturgeon - Southern DPS	***Acipenser medirostris***	Federally Threatened	Riverine, estuarine, and marine habitats along the west coast of North America - regionally entering San Francisco Bay and spawning in the Sacramento River	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The project site is outside of the spawning range and the lagoon is closed off by barrier beach in summer and fall when adults move from coastal waters into estuaries.
Guadalupe Fur Seal	***Arctocephalus townsendi***	Federally Threatened California Threatened and Fully Protected MMPA Depleted and Protected	Shallow, nearshore waters, preferring cool and sheltered rocky habitats along steep shelving shorelines - haul out on rock platforms with access to water and in sea caves.	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Humpback Whale	***Megaptera novaeangliae***	Federally Endangered MMPA Depleted and Protected	Throughout the world's open oceans, regionally feed along the California coast, rarely entering the San Francisco Bay	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.

Common Name	Scientific Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Least Bell's Vireo	***Vireo bellii pusillus***	Federally Endangered	Use thickets of willow and other low shrubs for nesting and roosting cover in southern Inyo, southern San Bernardino, Riverside, San Diego, Orange, Los Angeles, Ventura, and Santa Barbara Counties.	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** The project site is outside of this species' range.
Leatherback Sea Turtle	***Dermochelys coriacea***	Federally Endangered	Open ocean, occasionally entering bays and estuaries, primarily in tropical waters, but move into temperate waters during the summer.	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Marbled Murrelet	***Brachyramphus marmoratus***	Federally Threatened	Marine subtidal and pelagic habitats from the Oregon border to Point Sal, Santa Barbara Co. Breeds in coastal mature redwood and Douglas fir forests from Del Norte and Humboldt Counties to San Mateo and Santa Cruz Counties.	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Monarch (Overwintering Population)	***Danaus plexippus plexippus***	Federal Candidate	Generally overwinter in stands of exotic eucalyptus (*Eucalyptus* sp.), Monterey cypress (*Hesperocyparis macrocarpa*), Monterey pine (*Pinus radiata*), and western sycamore trees (*Platanus racemosa*).	There are multiple recorded overwintering sites for this species within 3 miles of the project site.	**Low.** Suitable overwintering habitat occurs along the northeastern boundary of the project site.
Monterey Dusky-Footed Woodrat	***Neotoma macrotis luciana***	California Species of Special Concern	Occupy large stick houses within wooded habitats with moderate canopy and a brushy understory within Monterey County.	This species is known to occur on the project site.	**High.** Woodrat nests were observed on the project site during site surveys.

Common Name	Scientific Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Monterey Shrew	***Sorex ornatus salarius***	California Species of Special Concern	Salt marshes around Monterey Bay.	Historic records (1927 and 1938) for this species occur in the vicinity of the project site (CNDDB Occurrence No. 5 and 6). Exact location is unknown, recorded as vicinity of Pebble Beach.	**Low**. While marginal habitat for this species occurs on the project site, this species has not been documented within the vicinity of the project site since the early 1900s.
North Pacific Loggerhead Sea Turtle	***Caretta caretta***	Federally Endangered	Open oceans with juveniles observed off of coastal California.	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
North Pacific Right Whale	***Eubalaena japonica***	Federally Endangered MMPA Depleted and Protected	Open ocean and coastal waters throughout temperate to subpolar latitudes of the Pacific Ocean	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Northern California Legless Lizard	***Anniella pulchra (formerly* ssp. nigra)**	California Species of Special Concern	Loose (sandy) soils, especially dunes, but including oak woodlands, chaparral, and along wooded stream edges	A record for this species occurs on the project site (CNDDB Occurrence No. 45).	**High.** This species has been recorded as occurring within the coastal scrub habitat on/near the project site.
Olive Ridley Sea Turtle	***Lepidochelys olivacea***	Federally Endangered	Open ocean, occasionally coastal areas, including bays and estuaries. Omnivorous species eating primarily small vertebrates and invertebrates.	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Pacific Harbor Seal	***Phoca vitulina***	MMPA Protected	Found along the California coast and within the San Francisco Bay - haul-out sites include beaches, mudflats and rocky outcroppings exposed only at low tide, and wetlands covered with vegetation	This species has been observed on the project site.	**High**. This species has been observed within the open water on the project site.

Common Name	Scientific Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Sei Whale	***Balaenoptera borealis***	Federally Endangered MMPA Depleted and Protected	Typically observed in deeper waters far from the coastline in subtropical, temperate, and subpolar waters around the world.	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Smith's Blue Butterfly	***Euphilotes enoptes smithi***	Federal Endangered	Coastal sand dunes and cliff/chaparral; feeds, lays eggs, and matures and pupates on dune buckwheat (*Eriogonum parvifolium*) and seaside buckwheat (*E. latifolium*)	The closest record for this species occurs approximately 1.3 miles southeast of the project site (CNDDB Occurrence No. 57).	**High.** Suitable habitat occurs within the coastal scrub portion of the project site.
Southern Resident Killer Whale	***Orcinus orca***	Federal Endangered MMPA Depleted	Found in all oceans. Most abundant in colder waters, they are also found in tropical and subtropical waters. Resident killer whales have been seen from California to Russia.	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Southern Sea Otter	***Enhydra lutris nereis***	Federally Threatened California Fully Protected MMPA Depleted and Protected	Nearshore marine environments of California from Ano Nuevo, San Mateo Co. to Point Sal, Santa Barbara Co	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Southwestern Willow Flycatcher	***Empidonax traillii extimus***	Federally Endangered	Breeds in relatively dense riparian tree and shrub communities associated with rivers, swamps, and other wetlands in central and southern California.	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** The project site is outside of this species' range.
Sperm Whale	***Physeter macrocephalus***	Federally Endangered MMPA Depleted and Protected	Open oceans throughout the world - observed in California waters off the continental slope	NMFS West Coast Region CA Species List for the Monterey Quad	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.

Common Name	Scientific Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Steelhead (South-Central California Coast DPS)	***Oncorhynchus mykiss irideus***	Federal Threatened	South-Central California coastal rivers, permanent coastal streams, and/or lagoons from the Pajaro River (Santa Cruz Co) to the Santa Maria River (San Luis Obispo Co)	This species is known to occur in the Carmel River and the Carmel River Lagoon (CNDDB Occurrence No. 24).	**High.** Records for this species occur on and adjacent to the project site.
Tidewater Goby	***Eucyclogobius newberryi***	Federally Endangered California Species of Special Concern	Brackish, shallow lagoons, and lower stream reaches with low salt levels along the Pacific coast of California from the Smith River in Del Norte County to Agua Hedionda Lagoon in San Diego County.	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** Although suitable habitat occurs in or adjacent to the project site, this species is considered extirpated from the lagoon (Swift et al. 1989).
Vernal Pool Fairy Shrimp	***Branchinecta lynchi***	Federally Threatened	Occur primarily in freshwater vernal pools, seasonal wetlands, and stagnant ditches that fill with water during fall and winter rains and dry up in spring and summer. Occur in coast range from Solano County to San Benito County.	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
Western Bumble Bee	***Bombus occidentalis***	California Candidate Endangered USFS Sensitive	Colonial nests in underground cavities on open slopes within meadows and grasslands.	The closest record for this species occurs approximately 1.3 miles southeast of the project site (CNDDB Occurrence No. 57).	**None.** No suitable habitat occurs within or adjacent to the project site.
Western Pond Turtle	***Emys marmorata***	California Species of Special Concern	Calm waters including streams and pools, with vegetated banks and log or rock basking sites	This species has been observed on the project site (CNDDB Occurrence No. 1108).	**High.** Records for this species occur on and adjacent to the project site.

Common Name	Scientific Name	Status	Habitat Type/Components	Occurrence Information	Probably of Occurring on the Project Site
Western Snowy Plover	***Charadrius nivosus nivosus***	Federally Endangered California Species of Special Concern	Nests on coastal beaches, sand spits, dune-backed beaches, sparsely-vegetated dunes, beaches at creek and river mouths, and salt pans at lagoons and estuaries from southern Washington to Baja California.	This species has been identified by the USFWS IPac tool as occurring in the vicinity of the project site.	**None.** The lagoon and adjacent upland valley foothill riparian and coastal scrub vegetation communities do not provide suitable habitat for this species.
White-tailed Kite	***Elanus leucurus***	California Fully Protected	Forages in grasslands, nests in proximally located trees with dense canopy	This species was observed on the project site during site surveys.	**High.** This species has been observed on the project site.

Appendix B. Site Photos

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 1
Northern end of unpaved maintenance road on eastern side of lagoon, looking southwest.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 2
Unpaved maintenance road on eastern side of lagoon, looking southwest.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 3
Seasonal wetland on unpaved maintenance road on eastern side of lagoon, looking southwest.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 4
Willow thicket directly north of maintenance road on eastern side of lagoon, looking southwest.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 5
Seasonal wetland on unpaved maintenance road on eastern side of lagoon, looking northeast.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 6
Perennial and seasonal wetlands south of unpaved maintenance road on eastern side of lagoon, looking southwest.

JOHNSON MARIGOT
CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 7
Southern end of paved maintenance road off Calle La Cruz on western side of lagoon, looking north.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 8
View of Carmel Meadows maintenance road on western side of lagoon, looking southeast.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 9
Carmel Meadows pump station adjacent to paved maintenance road on western side of lagoon, looking east.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 10
Lagoon crossing pipeline structure over south arm of Carmel Lagoon, looking east.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 11
Pedestrian trail off paved maintenance road on western side of lagoon, looking east.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 12
Start of Carmel Meadows trail network off maintenance road on western side of lagoon, looking west.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 13
Western HDD work area adjacent to Carmel Meadows Trail on western side of lagoon, looking northwest.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 14
Arm of Carmel Meadows Trail on western side of lagoon, looking southwest.

JOHNSON MARIGOT CONSULTING, LLC

CRFREE Mitigation Pipeline Undergrounding Project

Site Photo 15
Arm of Carmel Meadows Trail on western side of lagoon, looking west.

Appendix C. Plants Observed on the CRFREE Mitigation Pipeline Undergrounding Project Site

Common Name	Species Name
coastal sand verbena	*Abronia latifolia*
acacia	*Acacia* spp.
fiddleneck	*Amsinckia* sp.
California sagebrush	*Artemisia californica*
giant reed	*Arundo donax*
slender wild oats	*Avena barbata*
coyote brush	*Baccharis pilularis*
black mustard	*Brassica nigra*
rattlesnake grass	*Briza maxima*
ripgut brome	*Bromus diandrus*
narrow hairgrass	*Calamagrostis stricta*
morning glory	*Calystegia* sp.
Italian thistle	*Carduus pycnocephalus*
Santa Barbara sedge	*Carex barbarae*
buckbrush	*Ceanothus cuneatus*
bull thistle	*Cirsium vulgare*
poison hemlock	*Conium maculatum*
dogwood	*Cornus sericea*
pampas grass	*Cortaderia jubata*
bermudagrass	*Cynodon dactylon*
tall flatsedge	*Cyperus eragrostis*
cape ivy	*Delairea odorata*
salt grass	*Distichlis spicata*
California goldenbush	*Ericameria ericoides*
common spikerush	*Eleocharis macrostachya*
horseweed	*Erigeron canadensis*
dune buckwheat	*Eriogonum parvifolium*
seaside golden yarrow	*Eriophyllum staechadifolium*
California poppy	*Eschscholzia californica*
blue gum	*Eucalyptus globulus*
Italian ryegrass	*Festuca perennis*
fennel	*Foeniculum vulgare*
California coffeeberry	*Frangula californica*
French broom	*Genista monspessulana*
gumweed	*Grindelia camporum*

sneezeweed	*Helenium puberulum*
bristly ox-tongue	*Helminthotheca echioides*
Monterey cypress	*Hesperocyparis macrocarpa*
toyon	*Heteromeles arbutifolia*
short-podded mustard	*Hirschfeldia incana*
seaside barley	*Hordeum marinum*
fleshy jaumea	*Jaumea carnosa*
wire rush	*Juncus balticus*
toad rush	*Juncus bufonius*
common bog rush	*Juncus effusus*
Mexican rush	*Juncus mexicanus*
brown-headed rush	*Juncus phaeocephalus*
peppergrass	*Lepidium* sp.
coast twinberry	*Lonicera involucrata*
bird's foot trefoil	*Lotus corniculatus*
silver bush lupine	*Lupinus albifrons*
scarlet pimpernel	*Lysimachia arvensis*
hyssop loosestrife	*Lythrum hyssopifolia*
Fremont's bush mallow	*Malacothamnus fremontii*
sticky monkey flower	*Mimulus aurantiacus*
pincushion plant	*Navarretia* sp.
spotted ladysthumb	*Persicaria maculosa*
dotted smartweed	*Persicaria punctata*
Monterey pine	*Pinus radiata*
cut-leaf plantain	*Plantago coronopus*
narrow-leaved plantain	*Plantago lanceolata*
California sycamore	*Platanus racemosa*
Fremont cottonwood	*Populus fremontii*
silverweed	*Potentilla anserina* ssp. *pacifica*
Wright's cudweed	*Pseudognaphalium canescens*
bracken fern	*Pteridium aquilinum*
coast live oak	*Quercus agrifolia*
wild radish	*Raphanus sativus*
current	*Ribes* sp.
California rose	*Rosa californica*
California blackberry	*Rubus ursinus*

curly dock	*Rumex crispus*
fiddle dock	*Rumex pulcher*
ditchgrass	*Ruppia maritima*
sandbar willow	*Salix exigua*
red willow	*Salix laevigata*
arroyo willow	*Salix lasiolepis*
elderberry	*Sambucus nigra*
hardstem bulrush	*Schoenoplectus acutus*
black nightshade	*Solanum nigrum*
west coast Canada goldenrod	*Solidago elongata*
New Zealand spinach	*Tetragonia tetragonioides*
poison oak	*Toxicodendron diversilobum*
garden nasturtium	*Tropaeolum majus*
common verbena	*Verbena lasiostachys*
vetch	*Vicia sp.*
periwinkle	*Vinca major*

Appendix C: Noise Calculations

Carmel Area Wastewater District
Calle La Cruz Project

Noise Appendix

Technical Information

Noise Measurement Locations Figure

RCH GROUP
planning & environmental consulting

Noise Technical Information

Noise Descriptors

Sound is mechanical energy transmitted by pressure waves through a medium such as air. Noise is defined as unwanted sound. Sound pressure level has become the most common descriptor used to characterize the "loudness" of an ambient sound level. Sound pressure level is measured in decibels (dB), with zero dB corresponding roughly to the threshold of human hearing, and 120 to 140 dB corresponding to the threshold of pain. Decibels are measured using different scales, and it has been found that A-weighting of sound levels best reflects the human ear's reduced sensitivity to low frequencies, and correlates well with human perceptions of the annoying aspects of noise. The A-weighted decibel scale (dBA) is cited in most noise criteria. All references to decibels (dB) in this report will be A-weighted unless noted otherwise.

Several time-averaged scales represent noise environments and consequences of human activities. The most commonly used noise descriptors are the equivalent A–weighted sound level over a given time period (Leq)[1]; day–night 24-hour average sound level (Ldn)[2] with a nighttime increase of 10 dB to account for sensitivity to noise during the nighttime; and community noise equivalent level (CNEL)[3], also a 24-hour average that includes both an evening and a nighttime sensitivity weighting.

Table 1 identifies decibel levels for common sounds heard in the environment.

Noise Attenuation

Stationary point sources of noise, including construction equipment, attenuate (lessen) at a rate of 6 to 7.5 dB per doubling of distance from the source, depending on ground absorption. Soft sites attenuate at 7.5 dB per doubling because they have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. Hard sites have reflective surfaces (e.g., parking lots or smooth bodies of water) and therefore have less attenuation (6.0 dB per doubling). A street or roadway with moving vehicles (known as a "line" source), would typically attenuate at a lower rate, approximately 3 to 4.5 dB each time the distance doubles from the source, which also depends on ground absorption (CalTrans, 1998). Physical barriers located between a noise source and the noise receptor, such as berms or sound walls, will increase the attenuation that occurs by distance alone.

Sensitive Receptors

Noise sensitive land uses typically include residences, schools, child care centers, hospitals, long-term health care facilities, convalescent centers, retirement homes and recreation areas.

Temporary Construction Noise

The noise levels generated by construction equipment would vary greatly depending upon factors such as the type and specific model of the equipment, the operation being performed, the condition of the equipment and the prevailing wind direction. **Table 2** shows typical noise levels from construction equipment.

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[1]The Equivalent Sound Level (Leq) is a single value of a constant sound level for the same measurement period duration, which has sound energy equal to the time–varying sound energy in the measurement period.

[2]Ldn is the day–night average sound level that is equal to the 24-hour A-weighted equivalent sound level with a 10-decibel penalty applied to night between 10:00 p.m. and 7:00 a.m.

[3]CNEL is the average A-weighted noise level during a 24-hour day, obtained by addition of 5 decibels in the evening from 7:00 to 10:00 p.m., and an addition of a 10–decibel penalty in the night between 10:00 p.m. and 7:00 a.m.

Table 1: Typical Noise Levels

Noise Level (dB)	Outdoor Activity	Indoor Activity
90+	Gas lawn mower at 3 feet, jet flyover at 1,000 feet	Rock Band
80–90	Diesel truck at 50 feet	Loud television at 3 feet
70–80	Gas lawn mower at 100 feet, noisy urban area	Garbage disposal at 3 feet, vacuum cleaner at 10 feet
60–70	Commercial area	Normal speech at 3 feet
40–60	Quiet urban daytime, traffic at 300 feet	Large business office, dishwasher next room
20–40	Quiet rural, suburban nighttime	Concert hall (background), library, bedroom at night
10–20		Broadcast / recording studio
0	Lowest threshold of human hearing	Lowest threshold of human hearing

Source: (modified from Caltrans Technical Noise Supplement, 1998)

Groundborne Vibration

Construction operations have the potential to result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. The ground vibration levels associated with various types of construction equipment are summarized in **Table 3**. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance. The effects of ground vibration may be imperceptible at the lowest levels, low rumbling sounds and detectable vibrations at moderate levels, and slight damage to nearby structures at the highest levels.

At the highest levels of vibration, damage to structures is primarily architectural (e.g., loosening and cracking of plaster or stucco coatings) and rarely results in structural damage. For most structures, a peak particle velocity (PPV) threshold of 0.5 inches per second (in/sec) or less is sufficient to avoid structural damage. The Federal Transit Administration recommends a PPV threshold of 0.5 in/sec for residential and commercial structures, 0.25 in/sec for historic buildings and archaeological sites, and 0.2 in/sec for non-engineered timber and masonry buildings (FTA 2006).

Table 2: Typical Noise Levels from Construction Equipment

Construction Equipment	Noise Level (dB, Lmax at 50 feet)
Air Compressor	78
Backhoe	78
Caisson Drilling	80
Concrete Mixer Truck	79
Concrete Pump Truck	81
Crane	81
Dozer	82
Dump Truck	76
Excavator	81
Generator	81
Grader	85
HDD Drill Rig	*83-90
Loader	79
Paver	77
Pickup Truck	75

Source: Federal Highway Administration, Roadway Construction Noise Model User's Guide, 2006

*Source: CPUC, 2009, CPUC, 2013, and Millennium Pipeline Company, 2015.

Table 3: Representative Vibration Source Levels for Construction Equipment

Equipment		Peak Particle Velocity at 25 Feet (in/sec)
Pile Driver (impact)	upper range	1.518
	typical	0.644
Pile Driver (sonic)	upper range	0.734
	typical	0.170
Vibratory Roller		0.210
Large Bulldozer		0.089
HDD Drill Rig		0.089
Loaded Trucks		0.076
Jackhammer		0.035
Small Bulldozer		0.003

Source: Federal Transit Administration, 2006.

State Guidelines

State Land Use Compatibility standards for Community Noise (**Table 4**) are provided in the State of California General Plan Guidelines.

TABLE 4:
LAND USE COMPATIBILITY NOISE STANDARDS

Land Use Category	**Community Noise Exposure Ldn or CNEL, dB**
Residential – Low Density Single Family, Duplex, Mobile Homes	50 to 60 = Normally acceptable 55 to 70 = Conditionally acceptable 70 to 75 = Normally unacceptable 75 to 85 = Clearly unacceptable
Residential -- Multifamily	50 to 65 = Normally acceptable 60 to 70 = Conditionally acceptable 70 to 75 = Normally unacceptable 75 to 85 = Clearly unacceptable
Transient Lodging – Motels, Hotels	50 to 65 = Normally acceptable 60 to 70 = Conditionally acceptable 70 to 80 = Normally unacceptable 80 to 85 = Clearly unacceptable
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 to 70 = Normally acceptable 60 to 70 = Conditionally acceptable 70 to 80 = Normally unacceptable 80 to 85 = Clearly unacceptable
Auditoriums, Concert Halls, Amphitheaters	50 to 70 = Conditionally acceptable 65 to 85 = Clearly unacceptable
Sports Arena, Outdoor Spectator Sports	*50 to 75 = Conditionally acceptable* *70 to 85 = Clearly unacceptable*
Playgrounds, Neighborhood Parks	*50 to 70 = Normally acceptable* *67.5 to 75 = Normally unacceptable* *72.5 to 85 = Clearly unacceptable*
Golf Courses, Riding Stables, Water Recreation, Cemeteries	*50 to 75 = Normally acceptable* *70 to 80 = Normally unacceptable* *80 to 85 = Clearly unacceptable*
Office Buildings, Business, Commercial and Professional	*50 to 70 = Normally acceptable* *67.5 to 77.5 = Conditionally acceptable* *75 to 85 = Normally acceptable*
Industrial, Manufacturing, Utilities, Agriculture	*50 to 75 = Normally acceptable* *70 to 80 = Conditionally acceptable* *75 to 85 = Normally unacceptable*

Normally Acceptable	Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.
Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.
Normally Unacceptable	New construction or development should be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirement must be made and needed noise insulation features included in the design.
Clearly Unacceptable	New construction or development generally should not be undertaken.

Source*:* State of California General Plan Guidelines, Office of Planning and Research, 2017.

References

California Public Utilities Commission, 2009. *Draft EIR for the Sacramento Natural Gas Storage Project, D.9 Noise and Vibration.* April, 2009. https://www.cpuc.ca.gov/Environment/info/dudek/sngs/Appendices/Section%20D9%20Noise%20and%20Vibration.pdf

California Public Utilities Commission, 2013. *Final Mitigated Negative Declaration and Supporting Initial Study of PG&E's Embarcadero-Potrero 230 kV Transmission Project.* October, 2013. https://www.cpuc.ca.gov/environment/info/aspen/embarc-potrero/fmnd/Embarcadero-Potrero_230_kV_Transmission_Project_Final_MND-IS.pdf

California Department of Transportation (Caltrans), 1998. *Technical Noise Supplement*.

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Federal Highway Administration (FHWA), 2006. *Roadway Construction Noise Model User's Guide*.

Federal Transit Administration (FTA), 2006. *Transit Noise and Vibration Impact Assessment* (FTA-VA-90-1003-06).

Governor's Office of Planning and Research (OPR), 2003. *State of California General Plan Guidelines*.

Millennium Pipeline Company, 2015. *Valley Lateral Project, Resource Report 9, Air and Noise Quality.* November, 2015. http://www.millenniumpipeline.com/pdf/valley_lateral_project/FERC_Filing/Resource_Report_9_Air_and_Noise_Quality.pdf

SOURCE: Google Earth and RCH Group 2017

Carmel Area Wastewater District Pipelines
Calle La Cruz Project
Figure N-1
Noise Measurement Locations

Appendix D: Tribal Cultural Resources Outreach

Esselen Tribe Correspondence

Esselen Tribe of Monterey County

P.O. Box 95. Carmel Valley, Ca. 93924
831-214-5345 - Fax: 831-659-0111
Tribalchair@EsselenTribe.org

A California Native American 501-C-3 Non-Profit Organization

February 5, 2021

Patrick Treanor
Plant Engineer
Carmel Area Wastewater District
Dear Patrick,

I hope this letter finds you well. Thank you for informing the Esselen Tribe of Monterey County of the plans to reroute the existing sewer line under the Carmel River Lagoon: the **CRFREE Mitigation Pipeline Undergrounding Project**.

As you may already know the project is in or near two important cultural properties. One is CA-MNT-18/P-27-002487, which includes Carmel Mission, and the other is CA-MNT-14 which is at the north end of Carmel Meadows Subdivision. Both sites may be impacted by your proposed plan.

We understand that horizontal directional drilling limits above ground trenching; however, it does not mean that buried cultural resources will not be impacted. It is just that one cannot see the destruction if it occurs. There is also the issue of staging the drilling equipment.

Because of these concerns, the Esselen Tribe of Monterey County asks to be present when the equipment is staged and when the drilling commences in order to monitor the impacts.

Please contact the ETMC Tribal Administrator, Jana Nason, to coordinate this further. CRFREE Mitigation Pipeline Undergrounding Project.

Her email is tribaladmin@esselentribe.org

We look forward to working with you.
Sincerely and Respectfully,

Susan Morley

Susan Morley, M.A., R.P.A.
Cultural Resources Consultant,
Esselen Tribe of Monterey County
831-262-2300

The Esselen Tribe is dedicated to preserving our ancient indigenous connection to our ancestral cultural heritage, language and traditional ceremonial practices while protecting and preserving our sacred homelands along the Santa Lucia Mountains of Big Sur, Carmel Valley and Monterey County.

Esselen Tribe of Monterey County
P.O. Box 95. Carmel Valley, Ca. 93924
831-214-5345 - Fax: 831-659-0111
Tribalchair@EsselenTribe.org
A California Native American 501-C-3 Non-Profit Organization

April 19, 2021

Patrick Treanor
Plant Engineer
Carmel Area Wastewater District

Dear Patrick,

I hope your week is off to a good start. Once again, I am writing for the Esselen Tribe of Monterey County of the plans to reroute the existing sewer line under the Carmel River Lagoon. As I mentioned in my last email in February the ETMC is concerned about protecting important cultural properties, such as CA-MNT-14, which is in danger of being impacted by the bore that is being planned. We also understand how critical this project is.

We also understand that because you cannot determine, or rather guaranteed the exact location where the bore will exit--in or near the site--we believe the wiser mitigation measures would be to include:

1) Monitoring by both a qualified archaeologist, and a tribal monitor who has some field experience,
2) and should the resource be impacted, and the archaeologist and tribal monitor agree that the impacts are significant, that there will be a Phase III archaeological test program in place to assess the significance of the site so that we may learn something as a result of such impacts.

Because of these concerns, the Esselen Tribe of Monterey County asks to be present when the equipment is staged and when the drilling commences in order to monitor the impacts.

Please contact the ETMC Tribal Administrator, Jana Nason, to coordinate this further.

Her email is tribaladmin@esselentribe.org
We look forward to working with you.
Sincerely and Respectfully,

Susan Morley

Susan Morley, M.A., R.P.A.
Cultural Resources Consultant,
Esselen Tribe of Monterey County
831-262-2300

The Esselen Tribe is dedicated to preserving our ancient indigenous connection to our ancestral cultural heritage, language and traditional ceremonial practices while protecting and preserving our sacred homelands along the Santa Lucia Mountains of Big Sur, Carmel Valley and Monterey County.

Kakoon Ta Ruk Correspondence

KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria

February 16, 2021

Carmel Area Wastewater District
Patrick Treanor, Plant Engineer
PO Box 221428
Carmel, CA 93922

RE: CRFREE Mitigation Pipeline Undergrounding Project

Greetings Patrick Treanor,

Thank you for your project notification letter dated February 4, 2021, regarding the proposed Mitigation Pipeline Undergrounding Project in the Carmel River Lagoon and general vicinity South of the water treatment plant. We appreciate your effort to contact us and wish to respond.

Our Council has reviewed the project and concluded that it is within the aboriginal territories of the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria. Therefore, we have a cultural interest and authority in the proposed project area and would like to initiate formal consultation with you as the lead agency, which can be done virtual if possible.

Based on the information provided by your organization the Tribe is requesting full project details including: project timeline, phases, staging locations, haul routes and anything pertinent to the project. In addition the Tribe is also requesting the latest copy of any cultural resource study, EIR/DEIR and or cultural assessment report.

Please contact the following individuals for further questions:

Isaac Bojorquez
Tribal Chairman
Cell: 530- 723-2380
ohlone_1@yahoo.com

Lydia Bojorquez
Tribal Vice-Chair
Cell: 530-650-5943
warrior_woman151@yahoo.com

Please refer to identification number KKTR-02042021-1 in any correspondence concerning this project.

Thank you for providing us with this notice and the opportunity to comment.

Shurruru (Blessings),

Lydia Bojorquez

Lydia Bojorquez
Tribal Vice-Chair

From: Isaac Bojorquez
To: Patrick Treanor
Cc: warrior_woman151@yahoo.com; ohlone_1@yahoo.com
Subject: Re: Patrick Treanor shared the folder "CRFREE Mitigation AB52 Consultations" with you.
Date: Tuesday, April 27, 2021 3:13:14 PM
Attachments: image001.png
image002.png
image003.png
image004.png
image005.png

Hi Patrick,
Thank you, for speaking with me earlier today and talking through the mitigated measures. This looks good to the Tribe and we look forward to hearing from you regarding the project start dates.
Shurruru,

Isaac Bojorquez
KaKoon Ta Ruk Band of Ohlone-Costanoan Indians
Tribal Chairman
PO Box 541
Esparto, CA 95627
chairman@kakoontaruk.org

From: Patrick Treanor <Treanor@cawd.org>
Date: Tuesday, April 27, 2021 at 10:27 AM
To: "ibojorquez@kakoontaruk.org" <ibojorquez@kakoontaruk.org>
Cc: Dad <warrior_woman151@yahoo.com>, Isaac Bojorquez <ohlone_1@yahoo.com>
Subject: RE: Patrick Treanor shared the folder "CRFREE Mitigation AB52 Consultations" with you.

Hi Isaac,

Thanks for calling me and walking through your comments. Based on our discussion see attached for some proposed edits to the list of mitigations. I added two mitigations pertaining to the excavation, and clarified my understanding of the additional consultations in the event of discoveries. Let me know what you think.

Thanks,
Patrick

From: ibojorquez@kakoontaruk.org <ibojorquez@kakoontaruk.org>
Sent: Tuesday, April 27, 2021 8:47 AM
To: Patrick Treanor <Treanor@cawd.org>
Cc: warrior_woman151@yahoo.com; ohlone_1@yahoo.com
Subject: RE: Patrick Treanor shared the folder "CRFREE Mitigation AB52 Consultations" with you.

Good Morning Patrick,
I am sorry for the delay in getting these edits over to you, unfortunately our family has been dealing with some difficult times. I will follow up with a phone call to discuss any questions or concerns.
Shurruru,

Isaac Bojorquez
KaKoon Ta Ruk Band of Ohlone-Costanoan Indians
Tribal Chairman
PO Box 541
Esparto, CA 95627
Chairman@kakoontaruk.org

----- Forwarded Message -----
From: Patrick Treanor <treanor@cawd.org>
To: Isaac Bojorquez <ohlone_1@yahoo.com>; warrior_woman151@yahoo.com <warrior_woman151@yahoo.com>
Sent: Thursday, April 15, 2021, 10:46:01 AM PDT
Subject: RE: Patrick Treanor shared the folder "CRFREE Mitigation AB52 Consultations" with you.

Hi Isaac and Lydia,

Just wanted to check in with you both and see how you are coming along with a response letter stemming from our consultation on March 29th. I have included the Treatment Protocol that you sent into our CEQA document, but have not yet received any other correspondence with any further comments.

Let me know if you have any more questions about the project.

Thanks,

Patrick Treanor, P.E. | **Plant Engineer**

Office: 831-624-1248

Cell: 831-917-6479

Carmel Area Wastewater District

From: Isaac Bojorquez <ohlone_1@yahoo.com>
Sent: Monday, March 29, 2021 10:45 AM
To: warrior_woman151@yahoo.com; Patrick Treanor <Treanor@cawd.org>
Subject: Re: Patrick Treanor shared the folder "CRFREE Mitigation AB52 Consultations" with you.

Isaac Bojorquez
KaKoon Ta Ruk Band of Ohlone-Costanoan Indians
Tribal Chairman
PO Box 541
Esparto, CA 95627
ohlone_1@yahoo.com

On Monday, March 22, 2021, 10:13:48 AM PDT, Patrick Treanor <treanor@cawd.org> wrote:

Patrick Treanor shared a folder with you

Hi Lydia and Isaac,

You should have received an invitation for a Zoom meeting for Monday the 29th at 10 AM. Here is a link to various documents that you can review ahead of the meeting to get more familiar with the project. I will go over these in the meeting as well.

Let me know if you have any questions, otherwise I will see you on Zoom next Monday.

Thanks,
Patrick

CRFREE Mitigation AB52 Consultations

This link only works for the direct recipients of this message.

Open

DRAFT Midden Impact Avoidance and Mitigation Measures – AB52 Consultation

Mitigation wording below is informal verbiage, actual CEQA language will be more precise…

Background:

A site subsurface investigation and survey was conducted in 2020 (see Pacific Legacy Archaeological Survey Report). According to subsurface investigation the Midden deposits exist in the top 5 feet of soil. In a sense, the protocols and guidelines presented by this mitigation plan formalize the archaeological objectives, methods and procedures that the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria would like carried out throughout the course of the project as well as incorporating the Tribe's burial treatment protocol.

This mitigation plan will now address the general manner in which identified cultural resources are to be investigated. Upon discovery, all potentially significant archaeological resources – including human remains and cultural features, such as hearths, living surfaces, house and/or ceremonial floors, or cache pits -- shall be investigated and evaluated under the supervision of the designated project archaeologist, in consultation with the representatives from the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria. All archaeological investigations, either in the field or the laboratory, shall be conducted in accordance with the highest professional standards and guidelines. All excavation of human remains shall be done by hand in a culturally sensitive manner, in consultation with the on-site representatives of the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria.

Whenever Native American human remains are found during the course of a Project, the determination of Most Likely Descendant ("MLD") under California Public Resources Code Section 5097.98 will be made by the Native American Heritage Commission ("NAHC") upon notification to the NAHC of the discovery of said remains at a Project site. If the location of the site and the history and prehistory of the area is culturally-affiliated with the Tribe, the NAHC contacts the Tribe; a Tribal member will be designated by the Tribe to consult with the landowner and/or project proponents.

Should the NAHC determine that a member of an Indian tribe other than KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria is the MLD, and the Tribe is in agreement with this determination, the terms of this Protocol relating to the treatment of such Native American human remains shall not be applicable; however, that situation is very unlikely.

In consultation with the representatives of the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria, shall make a determination, based on the most complete information available, regarding whether the remains in question can be preserved in place without suffering any direct or indirect impacts from future ground-disturbing activity. If it is determined that the human remains in question can safely be preserved in place, this strategy represents the preferred mitigation option. If, on the other hand, the human remains in question will, or may, be subject to adverse impacts by any planned future ground-disturbing activity, these remains should be systematically exposed, documented and exhumed by the project archaeologist in a professional, dignified and culturally sensitive manner.

Upon removal, the human remains will be transported to a secure location under the jurisdiction of the designated archaeological consultant, where they will safely remain until a final decision is made regarding their final and permanent disposition. Decisions regarding the manner in which the recovered human remains are temporarily curated, as well as determinations concerning the final disposition of the pre-contact human remains encountered at the project site, will be made through the process of consultations between the project sponsor, the project archaeologist and representatives of the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria.

After consultation with the designated archaeological consultant and representatives of the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria, the project sponsor will take steps to adequately provide for the security of culturally sensitive archaeological materials, including human remains that have been exposed and cannot be safely removed from the project site at the close of any given work day. Such security measures may include, but are not necessarily limited to, fencing of sensitive areas within the project site and/or having security patrols of the site to prevent unauthorized access to the subject property at those times when the archaeological personnel and/or Native American monitors are not present – i.e., at night, on weekends or during holidays.

The following procedures are to be followed upon the discovery of Cultural Resources including but not limited to human remains within the borders of the Project site.

Site Prep and Access Mitigation Measures:

1. All construction personnel including pre-construction personnel will receive cultural resources sensitivity training by Tribal Monitor.
2. Existing vegetation in the construction area that needs to be removed will be cut and removed by hand.
3. Place Soil Stabilization Mats over areas where construction equipment will drive on Midden or otherwise impact surface of Midden. No excavation is required to place mats over existing soil.
4. Keep construction equipment on existing gravel roads where possible.
5. Fence construction area to keep construction personnel in a defined area.

Midden Excavation Mitigation Measures:

6. Where the pipelines need to traverse through the ~~5 foot deep~~5-foot-deep layer of midden deposits, the deposits will be excavated by open ~~cut~~ trench in the presence of an Archaeologist Monitor and a Tribal Monitor. The midden material that must be removed will be carefully inspected by the monitors during the excavation process. The total material to be excavated during the project is approximately 90 to 120 cubic yards.
7. The Tribal Monitor and Archaeologist Monitor may request further inspection of soils at the bore exit point to confirm no midden deposits at the exit depth. Further inspection may include digging test pits inside the 5-foot-deep trench at the HDD bore exit point, or dry boring at the exit point if feasible.
~~6.~~8. Trench excavation in the midden shall be accomplished with a straight edge/flat blade trenching bucket.
~~7.~~9. Excavated soils will not be removed from the site. Most the soil will be placed back in the trenches. Excess soil will be laid down in a 12-inch layer over the construction area at the

completion of construction. Relocated soil will be documented and recorded in applicable archives

~~8.~~ Revegetation of disturbed areas after construction shall be done by the Tribal community i~~s~~f possible or under the supervision of the Tribe.

Mitigations in case of Discovery of Significant Finds or Human Remains:

~~9.~~10. If significant finds or human remains are discovered, excavation will stop. NAHC, and State Park's Archaeologist will be contacted (and coroner if applicable).

11. Significant ~~D~~discoveries will be ~~relocated~~ handled according to consultation with Most Likely Descendant (MLD), California State Parks, and applicable legislation for non-grave artifacts.

12. In the event of significant discoveries, the MLD may request a~~A~~dditional measures ~~may~~to be added to ~~this mitigation plan~~protect the artifact(s) through the process of consultation between the project sponsor, California State Parks, the project archaeologist and representatives of the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria.

Treatment Protocol for Handling Human Remains and Cultural Items Affiliated with the KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria

The purpose of this Protocol is to formalize procedures for the treatment of Native American human remains, grave goods, ceremonial items, and items of cultural patrimony, in the event that any are found in conjunction with development, including archaeological studies, excavation, geotechnical investigations, grading, and any ground disturbing activity. This Protocol also formalizes procedures for Tribal monitoring during archaeological studies, grading, and ground-disturbing activities.

I. Cultural Affiliation

The KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria ("Tribe") traditionally occupied lands in Monterey County. The Tribe has designated its Cultural Resources Specialist to act on the Tribe's behalf with respect to the provisions of this Protocol. Any human remains which are found in conjunction with Projects on lands culturally-affiliated with the Tribe shall be treated in accordance with Section III of this Protocol. Any other cultural resources shall be treated in accordance with Section IV of this Protocol.

II. Inadvertent Discovery of Native American Human Remains

Whenever Native American human remains are found during the course of a Project, the determination of Most Likely Descendant ("MLD") under California Public Resources Code Section 5097.98 will be made by the Native American Heritage Commission ("NAHC") upon notification to the NAHC of the discovery of said remains at a Project site. If the location of the site and the history and prehistory of the area is culturally-affiliated with the Tribe, the NAHC contacts the Tribe; a Tribal member will be designated by the Tribe to consult with the landowner and/or project proponents.

Should the NAHC determine that a member of an Indian tribe other than KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria is the MLD, and the Tribe is in agreement with this determination, the terms of this Protocol relating to the treatment of such Native American human remains shall not be applicable; however, that situation is very unlikely.

III. Treatment of Native American Remains

In the event that Native American human remains are found during development of a Project and the Tribe or a member of the Tribe is determined to be MLD pursuant to Section II of this Protocol, the following provisions shall apply. The Medical Examiner shall immediately be notified, ground disturbing activities in that location shall cease and the Tribe shall be allowed, pursuant to California Public Resources Code Section 5097.98(a), to (1) inspect the site of the discovery and (2) make determinations as to how the human remains and grave goods should be treated and disposed of with appropriate dignity.

The Tribe shall complete its inspection and make its MLD recommendation within forty-eight (48) hours of getting access to the site. The Tribe shall have the final determination as to the disposition and treatment of human remains and grave goods. Said determination may

include avoidance of the human remains, reburial on-site, or reburial on other lands that will not be disturbed in the future.

The Tribe may wish to rebury said human remains and grave goods or ceremonial and cultural items on or near the site of their discovery, in an area which will not be subject to future disturbances over a prolonged period of time. Reburial of human remains shall be accomplished in compliance with the California Public Resources Code Sections 5097.98(a) and (b).

The term "human remains" encompasses more than human bones because the Tribe's traditions call for the burial of associated cultural items with the deceased (funerary objects), and/or the ceremonial burning of Native American human remains, funerary objects, grave goods and animals. Ashes, soils and other remnants of these burning ceremonies, as well as associated funerary objects and unassociated funerary objects buried with or found near the Native American remains are to be treated in the same manner as bones or bone fragments that remain intact.

IV. Non-Disclosure of Location of Reburials

Unless otherwise required by law, the site of any reburial of Native American human remains shall not be disclosed and will not be governed by public disclosure requirements of the California Public Records Act, Cal. Govt. Code § 6250 et seq. The Medical Examiner shall withhold public disclosure of information related to such reburial pursuant to the specific exemption set forth in California Government Code Section 6254(r). The Tribe will require that the location for reburial is recorded with the California Historic Resources Inventory System ("CHRIS") on a form that is acceptable to the CHRIS center. The Tribe may also suggest that the landowner enter into an agreement regarding the confidentiality of site information that will run with title on the property.

V. Treatment of Cultural Resources

Treatment of all cultural items, including ceremonial items and archeological items will reflect the religious beliefs, customs, and practices of the Tribe. All cultural items, including ceremonial items and archeological items, which may be found at a Project site should be turned over to the Tribe for appropriate treatment, unless otherwise ordered by a court or agency of competent jurisdiction. The Project Proponent should waive any and all claims to ownership of Tribal ceremonial and cultural items, including archeological items, which may be found on a Project site in favor of the Tribe. If any intermediary, (for example, an archaeologist retained by the Project Proponent) is necessary, said entity or individual shall not possess those items for longer than is reasonably necessary, as determined solely by the Tribe.

VI. Inadvertent Discoveries

If additional significant sites or sites not identified as significant in a Project environmental review process, but later determined to be significant, are located within a Project impact area, such sites will be subjected to further archeological and cultural significance evaluation by the Project Proponent, the Lead Agency, and the Tribe to determine if additional mitigation measures are necessary to treat sites in a culturally appropriate manner consistent with

CEQA requirements for mitigation of impacts to cultural resources. If there are human remains present that have been identified as Native American, all work will cease for a period of up to 30 days in accordance with Federal Law.

VIII. Work Statement for Tribal Monitors

The description of work for Tribal monitors of the grading and ground disturbing operations at the development site is attached hereto as Addendum I and incorporated herein by reference.

ADDENDUM I

KaKoon Ta Ruk Band of Ohlone-Costanoan Indians
Tribal Monitors
Description of Work and Treatment Protocol

I. Preferred Treatment

The preferred protocol upon the discovery of Native American human remains is to (1) secure the area, (2) cover any exposed human remains or other cultural items, and (3) avoid further disturbances in the area.

II. Comportment

All parties to the action are strongly advised to treat the remains with appropriate dignity, as provided in Public Resource Code Section 5097.98. We further recommend that all parties to the action treat tribal representatives and the event itself with appropriate respect. For example, jokes and antics pertaining to the remains or other inappropriate behavior are ill advised.

III. Excavation Methods

If, after the KaKoon Ta Ruk Bad of Ohlone-Costanoan Indians Tribal representative has been granted access to the site and it is determined that avoidance is not feasible, an examination of the human remains will be conducted to confirm they are human and to determine the position, posture, and orientation of the remains. At this point, we recommend the following procedures:

(A) Tools. All excavation in the vicinity of the human remains will be conducted using fine hand tools and fine brushes to sweep loose dirt free from the exposure.

(B) Extent of Exposure. In order to determine the nature and extent of the grave and its contents, controlled excavation should extend to a full buffer zone around the perimeter of the remains.

(C) Perimeter Balk. To initiate the exposure, a perimeter balk (especially, a shallow trench) should be excavated, representing a reasonable buffer a minimum of 10 cm around the maximum extent of the known skeletal remains, with attention to counter-intuitive discoveries or unanticipated finds relating to this or other remains. The dirt from the perimeter balk should be bucketed, distinctly labeled, and screened for cultural materials.

(D) Exposure Methods. Excavation should then proceed inward from the walls of the balk as well as downward from the surface of the exposure. Loose dirt should be scooped out and brushed off into a dustpan or other collective device. Considerable care should be given to ensure that human remains are not further impacted by the process of excavation.

(E) Provenience. Buckets, collection bags, notes, and tags should be fully labeled per provenience, and a distinction should be made between samples collected from: (1) **Perimeter Balk** (described above), (2) **Exposure** (dirt removed in exposing the exterior/burial plan and associations, and (3) **Matrix** (dirt from the interstices between bones or associations). Thus, each burial may have three bags, "Burial 1 Perimeter Balk," "Burial 1 Exposure Balk," "Burial 1 Matrix."

Please note the provisions below with respect to handling and conveyance of records and samples.

(F) Records. The following records should be compiled in the field: (1) a detailed scale drawing of the burial, including the provenience of and full for all human remains, associated artifacts, and the configuration of all associated phenomena such as burial pits, evidence for preinterment grave pit burning, soil variability, and intrusive disturbance, (2) complete a formal burial record using the consultants proprietary form or other standard form providing information on site #, unit or other proveniences, level depth, depth and location of the burial from a fixed datum, workers, date(s), artifact list, skeletal inventory, and other pertinent observations, (3) crew chief and worker field notes that may supplement or supercede information contained in the burial recording form, and (4) photographs, including either or standard photography or high-quality (400-500 DPI or 10 MP recommended) digital imaging.

(G) Stipulations for Acquisition and Use of Imagery. Photographs and images may be used only for showing location or configuration of questionable formation or for the position of the skeleton. They are not to be duplicated for publication unless a written release is obtained from the Tribe.

(H) Association. Association between the remains and other cultural materials should be determined in the field in consultation with an authorized Tribal representative, and may be amended per laboratory findings. Records of provenience and sample labels should be adequate to determine association or degree of likelihood of association of human remains and other cultural materials.

(I) Samples. For each burial, all **Perimeter Balk** soil is to be 1/8"-screened. All **Exposure** soil is to be 1/8"-screened, and a minimum of one 5-gallon bucket of excavated but unscreened Exposure soil is to be collected, placed in a plastic garbage bag in the bucket. All **Matrix** soil is to be carefully excavated, screened as appropriate, and then collected in plastic bags placed in 5-gallon buckets.

(J) Human remains are not to be cleaned in the field.

(K) Blessings. Prior to any physical action related to human remains, a designated tribal representative will conduct prayers and blessings over the remains. The archaeological consultant will be responsible for insuring that individuals and tools involved in the action are available for traditional blessings and prayers, as necessary.

IV. Lab Procedures

No laboratory studies are permitted without consultation with the tribe. Lab methods are determined on a project-specific basis in consultation with KaKoon Ta Ruk Band of Ohlone-Costanoan Indians of the Big Sur Rancheria representatives. The following procedures are recommended:

(A) Responsibility. The primary archaeological consultant will be responsible for insuring that all lab procedures follow stipulations made by the Tribe.

(B) Blessings. Prior to any laboratory activities related to the remains, a designated tribal representative will conduct prayers and blessings over the remains. The archaeological consultant will be responsible for insuring that individuals and tools involved in the action are available for traditional blessings and prayers, as necessary.

(C) Physical Proximity of Associations. To the extent possible, all remains, associations, samples, and original records are to be kept together throughout the laboratory process. In particular, **Matrix** dirt is to be kept in buckets and will accompany the remains to the lab. The primary archaeological consultant will be responsible for copying all field records and images, and insuring that the original notes and records accompany the remains throughout the process.

(*E) Additional Lab Finds*. Laboratory study should be done making every effort to identify unanticipated finds or materials missed in the field, such as objects encased in dirt or human remains misidentified as faunal remains in the field. In the event of discovery of additional remains, materials, and other associations the tribal representatives are to be contacted immediately.

V. Re-internment without Further Disturbance

No laboratory studies are permitted on human remains and funerary objects. The preferred treatment preference for exhumed Native American human remains is reburial in an area not subject to further disturbance. Any objects associated with remains will be reinterred with the remains.

VI. Curation of Recovered Materials

Should all, or a sample, of any archaeological materials collected during the data recovery activities – with the exception of Human Remains – need to be curated, an inventory and location information of the curation facility shall be given to tribe for our records.

Costanoan Rumsen Carmel Tribe Correspondence

Patrick Treanor

Subject: RE: Notification of proposed project - Carmel Area Wastewater District

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From: Tony Cerda <rumsen@aol.com>
Sent: Tuesday, March 9, 2021 3:26 PM
To: Kristina Pacheco <pacheco@cawd.org>
Cc: Desiree Munoz <desireemunoz.dm92@gmail.com>; Carla Marie Munoz <carlamarieohlone@gmail.com>
Subject: Re: Notification of proposed project - Carmel Area Wastewater District

Hello Kristina,

I Tony Cerda tribalchair of the Costanoan Rumsen Carmel tribe that i have received your letter and acknowledge your proposal. Thank you for reaching out. For further information on behalf of The Costanoan Rumsen Carmel Tribe fill free to reach out to Tribal council Woman Carla Marie and Tribal liaison Desiree Munoz who I've included on this email with their phone number's also.

Carla Marie Munoz (415)690-3110 carlamarieohlone@gmail.com
Desiree Munoz (909)491-8254

Shurur,
Tony Cerda

Sent from the all new Aol app for iOS

On Thursday, February 4, 2021, 10:08 AM, Kristina Pacheco <pacheco@cawd.org> wrote:

> Chairperson Cerda-
>
> Please review the attached letter regarding a proposed project from our organization. If you have any questions please call our Engineer, Patrick Treanor, at 831-624-1248 or email treanor@cawd.org.
>
> Thank you,
>
> Kristina Pacheco
>
> Administrative Assistant/Board Clerk
>
> Carmel Area Wastewater District
>
> 831-624-1248

pacheco@cawd.org

Patrick Treanor

From: Desiree Munoz <desireemunoz.dm92@gmail.com>
Sent: Friday, March 26, 2021 10:47 AM
To: Patrick Treanor
Subject: Re: FW: Notification of proposed project - Carmel Area Wastewater District

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning Patrick,

Thank you for the phone call on Tuesday. I would like to add on this email that I Desiree Munoz Tribal liaison of the Costanoan Rumsen Carmel tribe request the following: a monitor present when construction starts, and we want to work with all neighboring tribes, we also want to be apart of the vegetation project to replant native plants on the surface after construction, and lastly we would like to have Cultural sensitivity training. Thank you for all you time and efforts.

Shurur,
Desiree

On Tue, Mar 23, 2021 at 1:23 PM Patrick Treanor <Treanor@cawd.org> wrote:

> **From:** Kristina Pacheco <pacheco@cawd.org>
> **Sent:** Thursday, February 4, 2021 10:08 AM
> **To:** rumsen@aol.com
> **Cc:** Domine Barringer <barringer@cawd.org>; Patrick Treanor <Treanor@cawd.org>
> **Subject:** Notification of proposed project - Carmel Area Wastewater District
>
> Chairperson Cerda-
>
> Please review the attached letter regarding a proposed project from our organization. If you have any questions please call our Engineer, Patrick Treanor, at 831-624-1248 or email treanor@cawd.org.
>
> Thank you,
>
> Kristina Pacheco
>
> Administrative Assistant/Board Clerk

Carmel Area Wastewater District

831-624-1248

pacheco@cawd.org

--
Desiree Munoz
Costanoan Rumsen Carmel Tribe (Ohlone)
Tribal Representative/Program Organizer

Costanoan Rumsen Carmel Tribe

February 9, 2021

To: Coastal Conservancy State of California

Attention Patrick Treanor Plant Engineer, Carmel Area Wastewater District

Dear Patrick

Thank you for your recent letter of February 4, 2021. As you know some of our tribe's

(The Costanoan Rumsen Carmel Tribe) largest historical village's were located in this area of Carmel..

We sincerely appreciate your notice of this project in our Historical homeland. I am sure the horizontal directional drilling will be a great benefit in preserving and protecting this area. We have no objection to your plan and we are sure your project will be a successful one.

We trust that you will notify me immediately if any artifacts or remains are found in the area during construction.

Although there are other Costanoan / Ohlone tribes in the general area of central California; none have a valid Historical claim to this area.

Please note our Council of 20+ years recently expelled some members from our tribe. Our prior chairman Tony Cerda and others were expelled for Not following our By Laws and State and Federal Laws regarding 501c's. There is a Civil Injunction filed against them and sanctions pending. If they attempt to interfere in any way with your project please advise me immediately.

Thank you for your efforts to preserve this Historical area!
Sincerely,

Bob Burton

Bob Burton Chairman
Costanoan Rumsen Carmel Tribe
55281 Shoal Creek
La Quinta CA 92253
760 832 4196 direct cell
bobburton01@hotmail.com

Appendix E. Draft Mitigation Monitoring and Reporting Program – To be included in Final IS